

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.





LIBRARY  
OF THE  
UNITED STATES  
DEPARTMENT OF AGRICULTURE

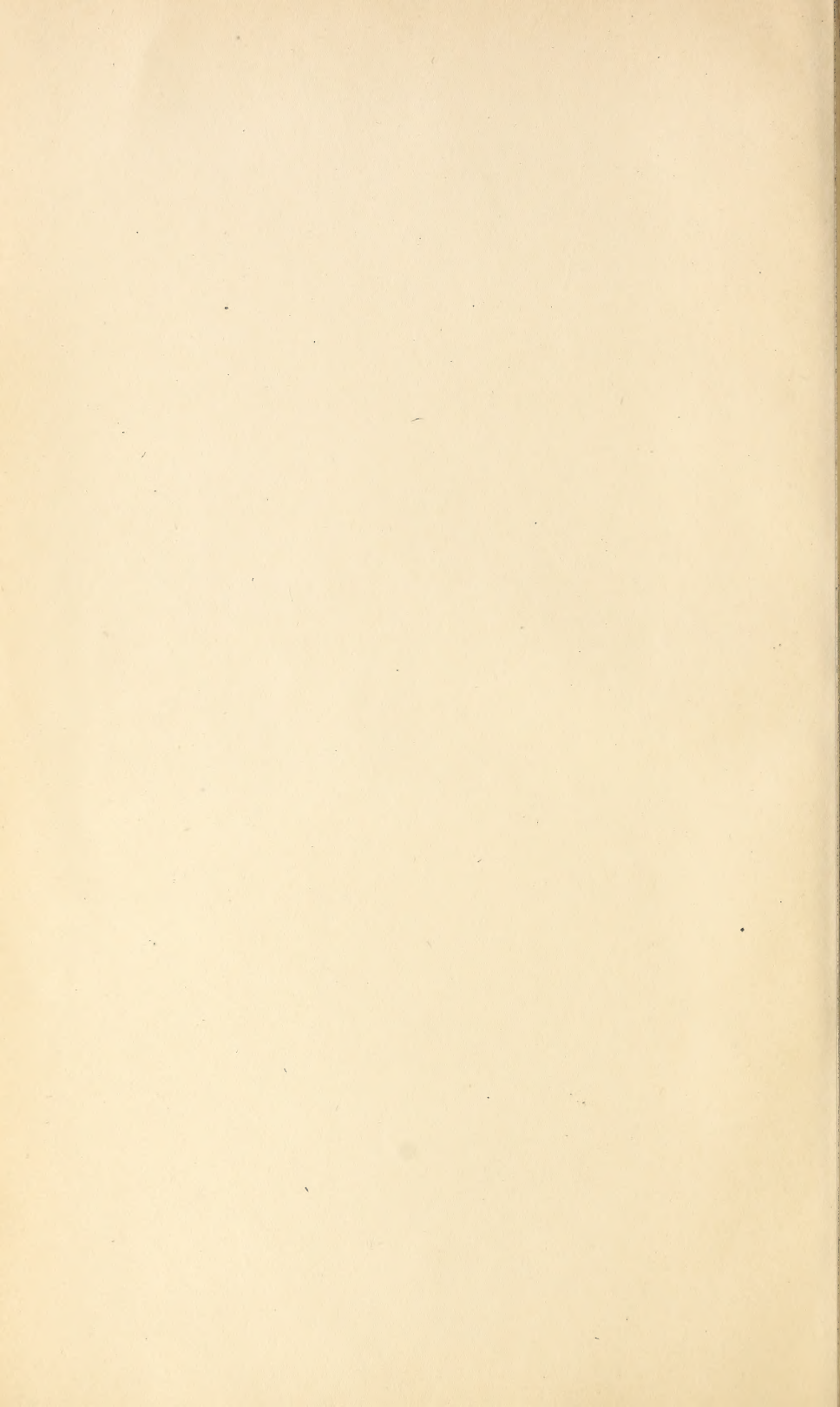
Class 410

Book Z 73

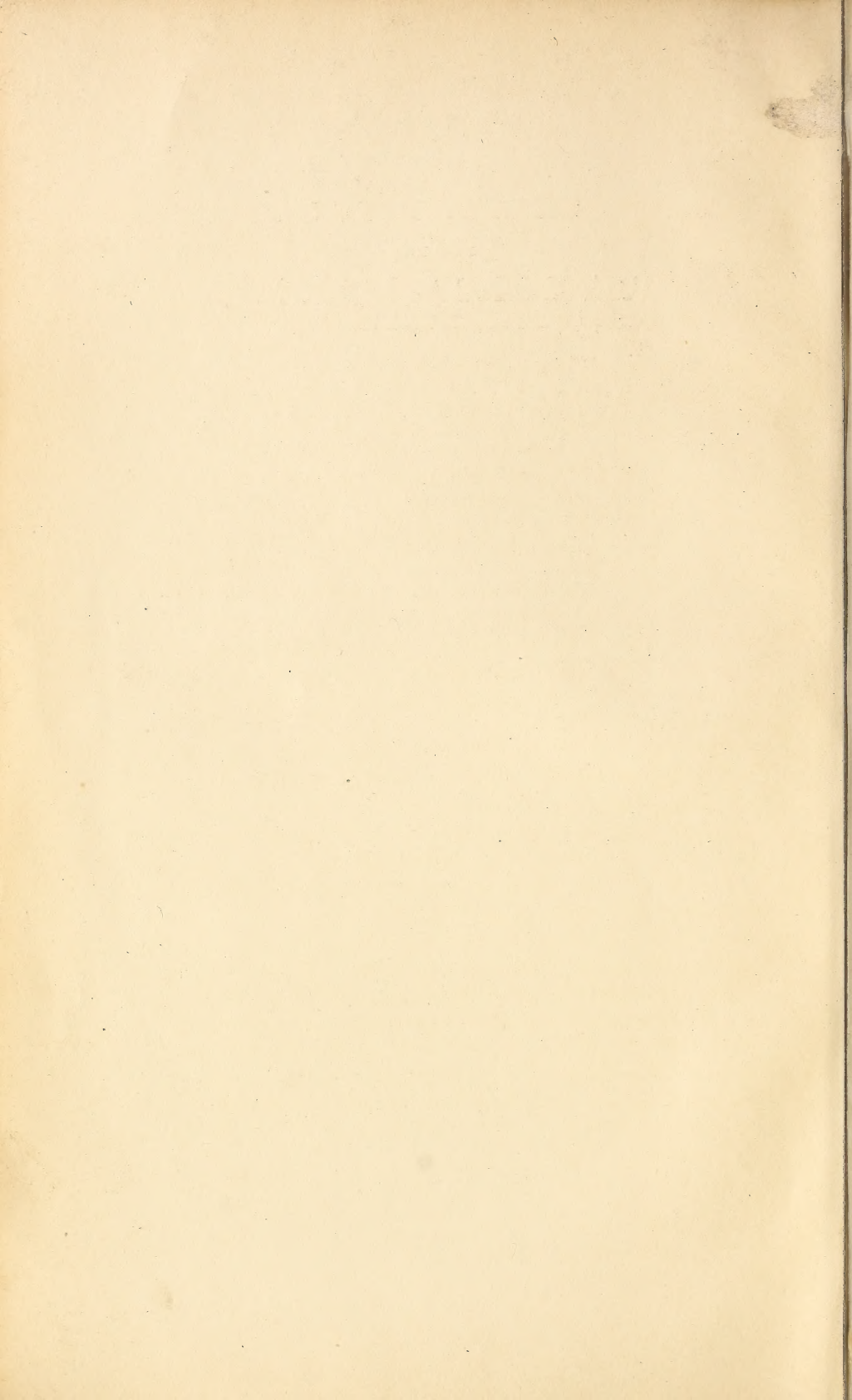
8-1577

v. 29. 1892. cop. 1









55 166  
agr  
240

# THE ZOOLOGICAL RECORD.

---

THE object of the ZOOLOGICAL RECORD is to give, by means of an annual Volume, complete lists of the Works and Publications relating to Zoology in all its branches that have appeared during the year preceding the date of the Volume; together with full information as to the points they deal with, arranged in such a manner as to serve as an Index to the literature of Zoology in all parts of the globe, and thus to form a repertory which will retain its value for the Student in future years.

The 'Zoological Record' is published for the Society by Messrs. Gurney and Jackson at the price of 30s. per volume. But all Members of the Zoological Society of London have the privilege of receiving it, including the cost of delivery (within the United Kingdom), at a subscription price of 20s. per annum. This Subscription is due on the 1st of July in every year, but the privilege of Subscription is forfeited unless the amount be paid before the 1st of December following.

The Zoological Society, having purchased the entire stock of the 'Zoological Record,' are able to supply complete sets of the first twenty-two volumes at the price of £5 10s. Volumes of any single year (exclusive of the last two volumes and Vol. 6) can likewise be supplied at 10s. per volume.

Members of the Society wishing to subscribe to the 'Record' are requested to apply at this office for a Form, to be returned when filled up and signed by the subscriber. In order to facilitate the payment of the subscription, a Banker's Order Form is also furnished to those who prefer that mode of payment. This order, when filled up and signed, should be sent to the Society's office for registration; it will then be sent to the Agents named therein.

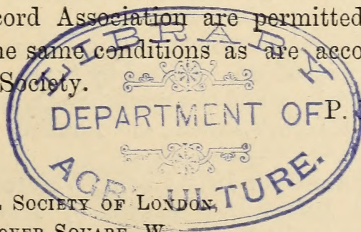
Learned Societies and Institutions and members of the former Zoological Record Association are permitted to subscribe to the 'Record' on the same conditions as are accorded to Members of the Zoological Society.

Oct. 1st, 1893.

ZOOLOGICAL SOCIETY OF LONDON,  
3, HANOVER SQUARE, W.

DEPARTMENT OF P. L. SCLATER,

Secretary.



LIST OF VOLUMES  
OF THE  
'ZOOLOGICAL RECORD.'

---

The Record of Zoological Literature, 1864. Volume First.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.Z.S.,  
&c. London, 1865. Price 10s.

---

The Record of Zoological Literature, 1865. Volume Second.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.Z.S.,  
&c. London, 1866. Price 10s.

---

The Record of Zoological Literature, 1866. Volume Third.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,  
F.Z.S., &c. London, 1867. Price 10s.

---

The Record of Zoological Literature, 1867. Volume Fourth.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,  
F.Z.S., &c. London, 1868. Price 10s.

---

The Record of Zoological Literature, 1868. Volume Fifth.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,  
F.Z.S., &c. London, 1869. Price 10s.

---

The Record of Zoological Literature, 1869. Volume Sixth.  
Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,  
F.Z.S., &c. London, 1870. Price 30s.

---

The Zoological Record for 1870; being Volume Seventh of the  
Record of Zoological Literature. Edited by ALFRED NEWTON, M.A.,  
F.R.S., Professor of Zoology and Comparative Anatomy in the Uni-  
versity of Cambridge, F.L.S., V.P.Z.S., &c. London, 1871. Price 10s.

---

The Zoological Record for 1871; being Volume Eighth of the  
Record of Zoological Literature. Edited by ALFRED NEWTON, M.A.,  
F.R.S., Professor of Zoology and Comparative Anatomy in the Uni-  
versity of Cambridge, F.L.S., V.P.Z.S., &c. London, 1873. Price 10s.

---

The Zoological Record for 1872; being Volume Ninth of the  
Record of Zoological Literature. Edited by ALFRED NEWTON, M.A.,  
F.R.S., Professor of Zoology and Comparative Anatomy in the Uni-  
versity of Cambridge, F.L.S., V.P.Z.S., &c. London, 1874. Price 10s.

---

The Zoological Record for 1873; being Volume Tenth of the  
Record of Zoological Literature. Edited by EDWARD CALDWELL  
RYE, F.Z.S., Librarian to the Royal Geographical Society. London,  
1875. Price 10s.

The Zoological Record for 1874; being Volume Eleventh of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1876. Price 10s.

---

The Zoological Record for 1875; being Volume Twelfth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1877. Price 10s.

---

The Zoological Record for 1876; being Volume Thirteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1878. Price 10s.

---

The Zoological Record for 1877; being Volume Fourteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1879. Price 10s.

---

The Zoological Record for 1878; being Volume Fifteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1880. Price 10s.

---

The Zoological Record for 1879; being Volume Sixteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1881. Price 10s.

---

The Zoological Record for 1880; being Volume Seventeenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1881. Price 10s.

---

The Zoological Record for 1881; being Volume Eighteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1882. Price 10s.

---

The Zoological Record for 1882; being Volume Nineteenth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1883. Price 10s.

---

The Zoological Record for 1883; being Volume Twentieth of the Record of Zoological Literature. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S., Editor Ent. M. Mag., Librarian to the Royal Geographical Society. London, 1884. Price 10s.

The Zoological Record for 1884 ; being Volume the Twenty-first of the Record of Zoological Literature. Edited by F. JEFFREY BELL, M.A., Sec. R.M.S., Professor of Comparative Anatomy and Zoology in King's College, London. London, 1885. Price 10s.

---

The Zoological Record for 1885 ; being Volume the Twenty-second of the Record of Zoological Literature. Edited by F. JEFFREY BELL, M.A., Sec. R.M.S., Professor of Comparative Anatomy and Zoology in King's College, London. London, 1886. Price 10s.

---

The Zoological Record for 1886 ; being Volume the Twenty-third of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. London, 1887. Price 10s.

---

The Zoological Record for 1887 ; being Volume the Twenty-fourth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. London, 1888. Price 10s.

---

The Zoological Record for 1888 ; being Volume the Twenty-fifth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. London, 1890. Price 10s.

---

The Zoological Record for 1889 ; being Volume the Twenty-sixth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. London, 1890. Price 10s.

---

The Zoological Record for 1890 ; being Volume the Twenty-seventh of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. London, 1892. Price 10s.

---

The Zoological Record for 1891 ; being Volume the Twenty-eighth of the Record of Zoological Literature. Edited by DAVID SHARP, Esq., M.D., F.R.S., F.Z.S. London, 1892. Price 30s.

---

The Zoological Record for 1892 ; being Volume the Twenty-ninth of the Record of Zoological Literature. Edited by DAVID SHARP, Esq., M.D., F.R.S., F.Z.S. London, 1893. Price 30s.

---

*These publications may be obtained at the SOCIETY'S OFFICE (3 Hanover Square, W.), of Messrs. GURNEY AND JACKSON (Paternoster Row, E.C.), or through any bookseller.*

THE  
ZOOLOGICAL RECORD,

VOLUME THE TWENTY-NINTH.

BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1892.

BY J. A. THOMSON, R. LYDEKKER, R. BOWDLER SHARPE, G. A. BOUL-  
LENGER, W. A. HERDMAN, B. B. WOODWARD, R. I. POCKOCK, D. SHARP,  
F. A. BATHER, FLORENCE BUCHANAN, S. J. HICKSON, AND R. HANITSCH.

EDITED BY

D. SHARP, M.A., F.R.S., F.Z.S., &c.,

CURATOR IN ZOOLOGY, UNIVERSITY MUSEUM OF ZOOLOGY AND COMPARATIVE  
ANATOMY, CAMBRIDGE.

*Explorate solum : sic fit via certior ultra.*

LONDON :  
GURNEY & JACKSON, PATERNOSTER ROW.  
M.DCCC.XCIII.

Communications, Papers, and Memoirs intended for this work should be addressed to "THE EDITOR of the Zoological Record, Zoological Society, 3, Hanover Square, London, W." It is earnestly requested that in the case of separately-printed copies of papers so forwarded, the *original pagination* be indicated.

The Editor thanks those Societies and individuals who have forwarded works and papers for the purposes of the Record, and suggests that Societies publishing Zoological Papers would much facilitate the work of the Recorders by forwarding a separate copy of each Zoological Memoir they publish to the Editor for the use of the Recorder.

## PREFACE.



OWING to the punctuality of most of the Recorders the twenty-ninth volume of the ZOOLOGICAL RECORD will be in the hands of the subscribers at a date that may, it is hoped, be considered satisfactory.

The names of three new Recorders appear on the title page, and the Editor feels it to be a duty, as well as a pleasure, to thank all the Contributors, old and new, for their assistance. The three new Recorders, Miss Florence Buchanan, Mr. F. O. Bather, and Dr. R. Hanitsch, have carried out their work in an efficient manner, though it is much to be regretted that Mr. Bather was prevented by a weakness of the eyes from completing his examination of the literature relating to *Echinodermata*. Mr. J. A. Thomson, being desirous of facilitating reference in the very extensive and difficult department he deals with, has drawn up a complete Subject Record in addition to a separate List of Works and Essays.

On comparing this twenty-ninth volume with those of the earlier part of the series, it will be noticed that the scope of the Record has become much enlarged. The Zoology of our days is an aggregate of a number of special departments of observation and research; hence, it is no easy task to furnish a complete Record, and at the same time to arrange it so as to meet the wishes of the various persons who may consult it from different points of view. In order to make the work as widely useful as possible, it appears to be necessary to give in each Record an Index of Special Subjects in addition to the List of Titles and the taxonomical arrangement according to genera; and this the Editor hopes may prove to be

feasible. Abstracts of, and Reports on, the Memoirs recorded will, as a consequence, be reduced to the narrowest dimensions.

As completeness should be the most indispensable of the characteristics of the work, there is in each of the Records one department it is impossible to speak of with satisfaction, viz.: Palæontology. When the Record was established it was not intended to include this subject. At the present time some of the Recorders examine the Geological literature of each year, and give a nearly complete epitome of the Palæontology they meet with, while others are content with a less exhaustive treatment of the subject.

To make the Palæontology complete, and to give a stratigraphical Index to it in each of the eighteen Records of which our volume consists, is a course that would add considerably to the labours of the Recorders and somewhat to the extent of the Volume, and cannot, therefore, in the present circumstances of the Record, be adopted. Indeed, it would be preferable for the Palæontologists to undertake a separate Record, and if no other satisfactory arrangement can be made, it may be hoped that they will do so, and thus relieve the Zoological Recorders from a task which they only imperfectly carry out.

D. SHARP.

CAMBRIDGE, *Sept.* 1, 1893.

LIST OF THE ABBREVIATED TITLES  
OF THE PRINCIPAL  
JOURNALS AND OF THE TRANSACTIONS OF LEARNED  
SOCIETIES  
THAT CONTAIN ZOOLOGICAL PAPERS.

---

- Abh. Ak. Berl.*—Abhandlungen der königlich Akademie der Wissenschaften zu Berlin. (Also *SB.*)
- Abh. Bayer. Ak.*—Abhandlungen der mathematisch-physikalischen Classe der k. Bayerischen Akademie der Wissenschaften (Munich). (Also *SB.*)
- Abh. Böhm. Ges.* — Abhandlungen der mathematisch-naturwissenschaftlichen Classe der k. Böhmischen Gesellschaft der Wissenschaften (Prague). (Called also *Rozpravy tridy mathematicko-přírodovědecké královské české společnosti nauk.*) (Also *SB.*)
- Abh. Ges. Götting.*—Abhandlungen der k. Gesellschaft der Wissenschaften zu Göttingen.
- Abh. Ges. Halle*—Abhandlungen der naturforschenden Gesellschaft in Halle. (Also *Ber.*)
- Abh. Ges. Isis*—Abhandlungen der naturwissenschaftlichen Gesellschaft 'Isis' in Dresden. (See *SB.*)
- Abh. Ges. Königsb.*—Abhandlungen der k. physikalisch-ökonomischen Gesellschaft in Preussen (Königsberg). (Also *SB.*)
- Abh. naturf. Ges. Görlitz*—Abhandlungen der naturforschenden Gesellschaft zu Görlitz.
- Abh. naturh. Ges. Nürnberg*—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg (Nürnberg).
- Abh. Sächs. Ges.*—Abhandlungen der k. Sächsischen Gesellschaft der Wissenschaften (Leipzig). (Also *Ber.*)
- Abh. Schw. pal. Ges.*—Abhandlungen der Schweizerischen paläontographischen Gesellschaft (Bâle).
- Abh. Senck. Ges.*—Abhandlungen herausgegeben von der Senckenbergischen naturforschenden Gesellschaft (Frankfort). (Also *Ber.*)

- Abh. Ver. Brem.*—Abhandlungen herausgegeben vom naturwissenschaftlichen Verein zu Bremen.
- Abh. Ver. Hamb.*—Abhandlungen aus dem Gebiete der Naturwissenschaften herausgegeben vom naturw. Verein in Hamburg.
- Abh. zool. Mus. Dresden*—Abhandlungen und Berichte des k. zoologischen, etc., Museums in Dresden.
- Act. Ac. Bordeaux*—Actes de l'Académie nationale des Sciences, Belles Lettres et Arts de Bordeaux.
- Act. Ac. Córdoba*—Actas de l'Academia nacional de Ciencias en Córdoba (Buenos Ayres).
- Act. Lund.*—Acta Universitatis Lundensis (Lund). (Called also *Lunds Universitets Årsskrift*.)
- Act. Soc. Chili*—Actes de la Société scientifique du Chili.
- Act. Soc. Fenn.*—Acta Societatis Scientiarum Fennicæ (Helsingfors).
- Act. Soc. Helv.*—Actes de la Société Helvétique des Sciences naturelles. (Called also *Verhandl. d. schweiz. Naturforsch. Gesells.*)
- Act. Soc. Jura.*—Actes de la Société Jurassienne d'Émulation.
- Act. Soc. L. Bord.*—Actes de la Société Linnéenne de Bordeaux. (Also *Comptes rendus*.)
- Act. Upsala.*—Acta Universitatis Upsalensis. (Called also *Upsala Universitets Årsskrift*.)
- Agric. Gaz. N.S.W.*—Agricultural Gazette of New South Wales (Sydney).
- Am. Geol.*—The American Geologist (Calvin et alii : Minneapolis).
- Am. J. Sci.*—American Journal of Science (New Haven).
- Am. Micr. J.*—American Monthly Microscopical Journal (Washington).
- Am. Nat.*—The American Naturalist (Philadelphia).
- Anat. Anz.*—Anatomischer Anzeiger (Bardleben : Jena).
- An. Mus. B. Aires*—Anales del Museo nacional, Buenos Aires.
- An. Mus. Costa Rica*—Anales del Museo nacional, Republica de Costa Rica (San José).
- An. Mus. La Plata*—Anales del Museo, La Plata (Buenos Ayres).
- An. Mus. nac. Mexico*—Anales del Museo nacional de México.
- An. Soc. Arg.*—Anales de la Sociedad Científica Argentina (Buenos Ayres).
- An. Soc. Esp.*—Anales de la Sociedad Española de Historia Natural (Madrid).
- Ann. Ent. Belg.*—Annales de la Société Entomologique de Belgique (Brussels).
- Ann. Fac. Marseille*—Annales de la Faculté des Sciences de Marseille, publiées sous les auspices de la municipalité (Marseille & Paris).
- Ann. Géol. univ. Paris*—Annuaire Géologique universel, Revue de Géologie et Paléontologie (Carey & Douvillé).
- Ann. Hofmuseum Wien*—Annalen des k. k. naturhistorischen Hofmuseums (von Hauer : Vienna).

- Ann. Mal.*—Annales de Malacologie (Servain : Paris).
- Ann. Micrograph.*—Annales de Micrographie spécialement consacrées à la Bactériologie aux Protophytes et aux Protozoaires (Miquel : Paris).
- Ann. Mus. Belg.*—Annales du Musée royal d'Histoire Naturelle de Belgique (Brussels).
- Ann. Mus. Genov.*—Annali del Museo civico di Storia Naturale di Genova (Genoa).
- Ann. Mus. Marseille*—Annales du Musée d'Histoire Naturelle de Marseille. Zoologie (Marion : Marseilles).
- Ann. N. H.*—Annals and Magazine of Natural History (London).
- Ann. N. York Ac.*—Annals of the New York Academy of Sciences. (Also *Trans.*)
- Ann. Queensland Mus.*—Annals of the Queensland Museum (Brisbane).
- Ann. Sci. Géol.*—Annales des Sciences Géologiques (Hébert & Milne-Edwards : Paris).
- Ann. Sci. Nat.*—Annales des Sciences Naturelles. Zoologie. (Paris).
- Ann. Scot. N. H.*—The Annals of Scottish Natural History.
- Ann. Soc. Agric. Lyon*—Annales de la Société d'Agriculture, Histoire Naturelle, et Arts utiles de Lyon (Lyons & Paris).
- Ann. Soc. Belg. Micr.*—(Also *Bull. Soc. Belg. Micr.*, q.v.)
- Ann. Soc. Brux.*—Annales de la Société Scientifique de Bruxelles (Brussels).
- Ann. Soc. Char.*—Annales de la Société des Sciences Naturelles de la Charente Inférieure (= Académie de la Rochelle).
- Ann. Soc. Ent. Fr.*—Annales de la Société Entomologique de France (Paris).
- Ann. Soc. Géol. Belg.*—Annales de la Société Géologique de Belgique (Liège).
- Ann. Soc. Géol. Nord*—Annales de la Société Géologique du Nord (Lille). (Also *Mémoires.*)
- Ann. Soc. L. Lyon (n.s.)*—Annales de la Société Linnéenne de Lyon. Nouvelle série.
- Ann. Soc. Mal. Belg.*—Annales de la Société Malacologique de Belgique (Brussels).
- Ann. Univ. Lyon*—Annales de l'université de Lyon (Paris).
- Ann. Univ. Toscane*—Annali delle Università Toscane (Pisa).
- Ant. Annual*—The Antananarivo Annual and Madagascar Magazine (Sibree : Antananarivo).
- Anz. Ak. Wien*—Anzeiger der mathematisch-naturwissenschaftlichen Classe der k. Akademie der Wissenschaften zu Wien (Vienna).
- Appalachia*—Appalachia: the Journal of the Appalachian Mountain Club (Boston).
- Arb. Inst. Würzb.*—Arbeiten aus dem zoologisch-zootomischen Institute in Würzburg.

- Arb. z. Inst. Wien*.—Arbeiten aus dem zoologischen Institute der Universität Wien (Vienna).
- Arb. z. Inst. Graz*.—Arbeiten aus dem zoologischen Institute zu Graz (Leipsic).
- Arch. Anat. Phys.*.—Archiv für Anatomie und Physiologie (His, Braune, & Du Bois Reymond : Leipzig).
- Arch. Biol.*.—Archives de Biologie (Van Beneden & Van Bambeke : Ghent).
- Arch. d'Anthrop.*.—Archives d'Anthropologie (Toulouse).
- Arch. f. Anthrop.*.—Archiv für Anthropologie : Zeitschrift für Naturgeschichte und Urgeschichte des Menschen (Brunswick).
- Arch. f. Math. og Naturv.*.—Archiv for Mathematik og Naturvidenskab (Lie, G. O. Sars : Kristiania).
- Arch. f. Nat.*.—Archiv für Naturgeschichte. Neue Folge (Berlin).
- Arch. f. Thierheilk.*.—Archiv für Thierheilkunde.
- Arch. ges. Phys.*.—Archiv für die gesammte Physiologie des Menschen und der Thiere (Pflüger : Bonn).
- Arch. Ital. Biol.*.—Archives Italiennes de Biologie ; Revues, Résumés, Reproductions des travaux scientifiques Italiens (Emery & Mosso : Turin).
- Arch. mikr. Anat.*.—Archiv für mikroskopische Anatomie (Bonn).
- Arch. Miss. Sci.*.—Archives des Missions Scientifiques et Littéraires (Paris).
- Arch. Mus. Lyon*.—Archives du Muséum d'Histoire Naturelle de Lyon.
- Arch. Mus. R. Jan.*.—Archivos do Museu nacional do Rio de Janeiro.
- Arch. Mus. Teyl.*.—Archives du Musée Teyler (Haarlem).
- Arch. Nat. Liv.*.—Archiv für die Naturkunde Liv-, Esth-, und Kurlands (Dorpat).
- Arch. naturw. Landesforsch. Böhmen*.—Archiv für naturwissenschaftliche Landesdurchforschung von Böhmen (Prag).
- Arch. Néerl.*.—Archives Néerlandaises des Sciences Exactes et Naturelles (Bosscha : Haarlem).
- Arch. Phys.*.—Archives de Physiologie Normale et Pathologique (Brown-Séquard : Paris).
- Arch. Sci. Nat.*.—Archives des Sciences Physiques et Naturelles (Geneva).
- Arch. Ver. Mecklenb.*.—Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg.
- Arch. Zeeuwsch Genoots. Wetensch.*.—Archief vroegere en latere Mededeelingen voornamelijk in Betrekking tot Zeeland uitgegeven door het Zeeuwsch Genootschap der Wetenschappen (Middelburg).
- Arch. Z. expér.*.—Archives de Zoologie expérimentale et générale (Lacaze-Duthiers : Paris).
- Atti Acc. Gioen.*.—Atti dell' Accademia Gioenia di Scienze Naturali (Catania).

- Atti Acc. Napoli*.—Atti della R. Accademia delle Scienze Fisiche e Matematiche.
- Atti Acc. Palermo*.—Atti della R. Accademia di Scienze, Lettere e Belle Arti di Palermo (Palermo).
- Atti Acc. Pontaniana*.—Atti dell' Accademia Pontaniana (Naples).
- Atti Acc. Pontif. Lincei*.—Atti dell' Accademia Pontificia de' nuovi Lincei.
- Atti Acc. Tor.*—Atti della R. Accademia delle Scienze di Torino (Turin).
- Atti Ist. Nap.*—Atti del R. Istituto d'incoraggiamento alle Scienze Naturali Economiche e Tecnologiche, &c., di Napoli (Naples).
- Atti Ist. Venet.*—Atti del R. Istituto Veneto di Scienze, Lettere et Arti, &c. (Venice).
- Atti [Mem. Rend.] Acc. Rom.*—Atti [Memorie: Rendiconti] della R. Accademia dei Lincei (Rome).
- Atti [Mem.] Soc. Tosc.*—Atti [Memorie] della Società Toscana di Scienze Naturali residente in Pisa.
- Atti [Rend. Mem.] Soc. Mod.*—Atti [Memorie: Rendiconti] della Società dei Naturalisti di Modena.
- Atti Soc. Ital.*—Atti della Società Italiana di Scienze Naturali (Milan).
- Atti Soc. Ligust.*—Atti della Società Ligustica di scienze naturali e geografiche (Genova).
- Atti Soc. Ven.-Trent.*—Atti della Società Veneto-Trentina di Scienze Naturali residente in Padova (Padua). (Also *Bull.*)
- Atti Univ. Genova*.—Atti della R. Università di Genova.
- Auk*.—The Auk. A Quarterly Journal of Ornithology. (Continuation of the *Bulletin of the Nuttall Ornithological Club.*)
- Ausland*.—Das Ausland (Stuttgart).
- 
- Beitr. Morphol. Morphog.*—Beiträge zur Morphologie und Morphogenie (Gerlach: Stuttgart).
- Beitr. Pal. Oesterr.-Ung.* — Beiträge zur Paläontologie Oesterreich-Ungarn's und des Orients (Mojsisovics & Neumayr: Vienna).
- Beitr. Russ. Reiches* (2)—Beiträge zur Kenntniss des Russischen Reiches und der angrenzenden Länder Asiens. Neue Folge (Schrenck & Maximowics: St. Petersburg).
- Ber. deuts. botan. Ges.*—Bericht der deutschen botanischen Gesellschaft (Berlin).
- Ber. deutsch. orn. Ges.*—Bericht der allgemeinen deutschen ornithologischen Gesellschaft zu Berlin.
- Ber. Ges. Freiburg*—Berichte der naturforschenden Gesellschaft zu Freiburg (Freiburg, i Br.).
- Bergens Mus. Aarsber.*—Bergens Museum Aarsberetning (Bergen).
- Ber. Ges. Chemn.*—Bericht der naturwissenschaftlichen Gesellschaft zu Chemnitz.

- Ber. Ges. Halle*—Bericht über die Sitzungen der naturforschenden Gesellschaft zu Halle. (Also *Abhandl.*)
- Ber. Ges. Hanau* = *JB. wetter. Ges.*
- Ber. Komm. wiss. Unters. deutsch. Meere*—Bericht der Kommission zur Untersuchung der deutschen Meere.
- Ber. Naturf. Ärzte*—Ämtliche Bericht deutscher Naturforscher und Ärzte.
- Ber. naturf. Ges. Bamberg*—Bericht der naturforschenden Gesellschaft in Bamberg.
- Ber. naturhist. Mus. Hamburg*—Bericht des naturhistorischen Museums in Hamburg.
- Ber. natur. Ver. Passau*—Bericht des naturhistorischen Vereins in Passau.
- Ber. naturw. Ver. Regensburg*—Bericht der naturwissenschaftlichen Vereins in Regensburg. (Formerly *CB.*)
- Ber. Oberhess. Ges.*—Bericht der Oberhessischen Gesellschaft für Natur- und Heilkunde (Giessen).
- Ber. Offenb. Ver.*—Bericht über die Thätigkeit des Offenbacher Vereins für Naturkunde (Offenbach-on-the-Main).
- Ber. Sächs. Ges.*—Bericht ueber die Verhandlungen der königlichen Sächs. Gesellschaft der Wissenschaft in Leipzig. (Also *Abhandl.*)
- Ber. Senck. Ges.*—Bericht der Senckenbergische naturforschende Gesellschaft im Frankfurt am Main. (Also *Abhandl.*)
- Ber. St. Gall. Ges.*—Bericht über die Thätigkeit der St. Gallischen naturwissenschaftlichen Gesellschaft (St. Gallen).
- Ber. Ver. Cassel*—Berichte des Vereins für Naturkunde zu Cassel.
- Ber. Ver. Pass.*—Bericht der naturwissenschaftlichen Vereins in Passau.
- Ber. Ver. Schwaben*—Bericht der naturwissenschaftlichen Vereins für Schwaben und Neuburg (a. V.), früher naturhistorischen Vereins Augsburg (Augsburg).
- Berl. Monats.*—Berliner Monatshefte.
- B. E. Z.*—Berliner Entomologische Zeitschrift.
- Bibl. haut. études.*—Bibliothèque de l'école des hautes études. Section des Sciences Naturelles (Paris).
- Bibl. univ.*—Bibliothèque universelle et Revue Suisse (Geneva). (See *Arch. Sci. Nat.*)
- Bibl. Zool.*—Bibliotheca Zoologica (Leipsic).
- Bidr. Finl. Nat.*—Bidrag till Kännedom af Finlands Natur och Folk (Helsingfors).
- Bih. Sv. Ak. Handl.*—Bihang till K. Svenska Vetenskaps-Akademiens Handlingar (Stockholm).
- Bijdr. Dierk.*—Bijdragen tot de Dierkunde (Amsterdam).
- Biol. Centralbl.*—Biologisches Centralblatt (Rosenthal : Erlangen).
- Biol. Centr. Am.*—Biologia Centrali Americana (Godman & Salvin : London).

- Biol. Fören.*—Biologiska Föreningens Förhandlingar. Verhandlungen des biologischen Vereins in Stockholm. (Figerstedt : Stockholm.)
- Bol. Ac. Arg.*—Boletín de la Academia nacional de Ciencias de la Republica Argentina (Cordoba).
- Bol. geol. S. Paulo*—Boletim da Comissão geographica e geologica da Provincia de S. Paulo.
- Bol. Mus. la Plata*—Boletín del Museo la Plata (Buenos Ayres).
- Bol. Com. Geol.*—Bollettino del R. Comitato Geologico d'Italia (Roma).
- Boll. Mus. Zool. Anat. Comp. Torino*—Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino.
- Boll. scient.*—Bollettino scientifico (Maggi, Zoja, & Giovanni : Pavia).
- Boll. Soc. Adr.*—Bollettino della Società Adriatica di Scienze naturali (Trieste).
- Boll. Soc. geol. Ital.*—Bollettino della Società geologica Italiana (Rome).
- Boll. Soc. Nat. Napoli*—Bollettino della Società di Naturalisti in Napoli. (Formerly Rivista italiana di scienze naturali [Circolo degli aspiranti naturalisti].)
- Boll. Soc. Rom. Stud. Zool.*—Bollettino della Società Romana per gli Studi Zoologici.
- Bot. Z.*—Botanische Zeitung (Halle).
- Brit. Nat.*—The British Naturalist (Robson : London).
- Bull. Ac. Belg.*—Bulletin de l'Académie royale des Sciences, des Lettres, et des Beaux Arts de Belgique (Brussels). (Also *Mem.*.)
- Bull. Ac. Cracovie*—Bulletin international de l'Académie des sciences de Cracovie (Cracovie).
- Bull. Ac. Hippone*—Bulletin de l'Académie d'Hippone (Bône).
- Bull. Am. Mus. Nat. Hist.*—Bulletin of the American Museum of Natural History (New York).
- Bull. Brit. Ornith. Club*—Bulletin of the British Ornithologists' Club.
- Bull. Brookville Soc.*—Bulletin of the Brookville Society of Natural History (Brookville, Indiana, U.S.A.).
- Bull. Buff. Soc.*—Bulletin of the Buffalo Society of Natural Sciences.
- Bull. Bussey Inst.*—Bulletin of the Bussey Institution (Boston).
- Bull. Cornell Univ.*—Bulletin of the Cornell University. (Ithaca.)
- Bull. Denison Univ.*—Bulletin of the Scientific Laboratories of Denison Universities (Granville, Ohio).
- Bull. Dep. Agric. Ent.*—U.S. Department of Agriculture. Division of Entomology. Bulletin (Washington).
- Bull. Ent. Ital.*—Bollettino della Società Entomologica Italiana (Florence).
- Bull. Ess. Inst.*—Bulletin of the Essex Institute (Salem, U.S.A.).
- Bull. Geol. Soc. Amer.*—Bulletin of the Geological Society of America (New York).

- Bull. Illin. Lab. N. H.*—Bulletin of the Illinois State Laboratory of Natural History. (Champaign, Illinois.)
- Bull. Inst. Nat. Genevois*—Bulletin de l'Institut nationale Genevois.
- Bull. Lab. Iowa*—Bulletin from the Laboratories of Natural History of the State University of Iowa (Iowa city).
- Bull. Minnesota Acad.*—Bulletin of the Minnesota Academy of Natural Sciences.
- Bull. Mosc.*—Bulletin de la Société impériale des Naturalistes de Moscou (Menzbier : Moscow).
- Bull. Mus. Belg.*—Bulletin du Musée royal d'Histoire Naturelle de Belgique (Brussels).
- Bull. Mus. C. Z.*—Bulletin of the Museum of Comparative Zoology of Harvard College (Cambridge, U.S.A.).
- Bull. Nat. Hist. Soc. New Brunswick*—Bulletin of the Natural History Society of New Brunswick (St. John's, N.B.).
- Bull. New York Mus. Nat. Hist.*—Bulletin of the New York State Museum of Natural History (Albany).
- Bull. Ohio Exp. Station*—Bulletin of the Ohio Agricultural Experiment Station, Technical Series (Columbus).
- Bull. Pétersb.*—Bulletin de l'Académie impériale des Sciences de St. Pétersbourg.
- Bull. Phil. Soc. Wash.*—Bulletin of the Philosophical Society of Washington.
- Bull. Sci. Fr. Belg.*—Bulletin Scientifique de la France et de la Belgique (Giard : Paris).
- Bull. Soc. Ac. Brest*—Bulletin de la Société Académique de Brest.
- Bull. Soc. Acclim.*—Bulletin mensuel de la Société nationale d'Acclimation de Paris (Paris).
- Bull. Soc. Angers*—Bulletin de la Société d'Études scientifiques d'Angers (Angers).
- Bull. Soc. Anthrop. Lyon*—Bulletin de la Société d'Anthropologie de Lyon.
- Bull. Soc. Anthrop. Paris*—Bulletin de la Société d'Anthropologie de Paris.
- Bull. Soc. Aude*—Bulletin de la Société d'Études scientifiques de l'Aude (Carcassonne).
- Bull. Soc. Autun*—Société d'Histoire Naturelle d'Autun.
- Bull. Soc. Belg. Micr.*—Bulletin de la Société Belge de Microscopie (Brussels). (Also *Annales*.)
- Bull. Soc. Béziers*—Bulletin de la Société d'Étude des Sciences Naturelles de Béziers. Comptes rendus des Séances (Béziers).
- Bull. Soc. Borda-Dax*—Bulletin de la Société de Borda (Dax).
- Bull. Soc. Colm.*—Bulletin de la Société d'Histoire Naturelle de Colmar.

- Bull. Soc. d'Elbeuf*.—Bulletin de la Société d'étude des sciences naturelles d'Elbeuf.
- Bull. Soc. Dinan*.—Bulletin de la Société des Naturalistes Dinantais (Dinant).
- Bull. Soc. Ent. Suisse*.—See *MT. Schw. ent. Ges.*
- Bull. Soc. Ent. Fr.*—Bulletin des séances de la Société Entomologique de France (Paris) (See *Ann.*).
- Bull. Soc. Finistère*.—Bulletin de la Société d'Etudes scientifiques du Finistère (Morlaix).
- Bull. Soc. Geogr.*—Bulletin de la Société de Géographie (Paris).
- Bull. Soc. Géol.*—Bulletin de la Société Géologique de France (Paris).
- Bull. Soc. Isère*.—Bulletin de la Société de statistique des sciences naturelles et des arts industriels du département de l'Isère (Grenoble).
- Bull. Soc. L. Bruxelles*.—Bulletin de la Société royale Linnéenne de Bruxelles.
- Bull. Soc. L. Nord France*.—Bulletin de la Société Linnéenne du Nord de la France (Amiens).
- Bull. Soc. L. Norm.*—Bulletin de la Société Linnéenne de Normandie (Caen).
- Bull. Soc. Mal. Fr.*—Bulletin de la Société Malacologique de France (Paris).
- Bull. Soc. Mal. Ital.*—Bullettino della Società Malacologica Italiana (Pisa).
- Bull. Soc. Metz*.—Bulletin de la Société d'Histoire Naturelle de Metz (formerly du Département de la Moselle).
- Bull. Soc. Murith*.—Bulletin des travaux de la Société Murithienne du Valais (Neuchâtel).
- Bull. Soc. Nancy*.—Bulletin de la Société des Sciences de Nancy (Paris).
- Bull. Soc. Neuchatel*.—Bulletin de la Société des Sciences Naturelles de Neuchatel.
- Bull. Soc. Nîmes*.—Bulletin de la Société d'étude des sciences naturelles de Nîmes (Nîmes).
- Bull. Soc. Ouest France*.—Bulletin de la Société des Sciences Naturelles de l'Ouest de la France (Paris).
- Bull. Soc. Philom.*—Bulletin de la Société Philomathique de Paris.
- Bull. Soc. Rouen*.—Bulletin de la Société des Amis des Sciences Naturelles de Rouen (Rouen).
- Bull. Soc. Saone*.—Bulletins de la Société des Sciences Naturelles de Saone-et-Loire (Chalons sur Saone.) (Also *Mem.*)
- Bull. Soc. Savoie*.—Bulletin de la Société d'Histoire Naturelle de Savoie (Chambéry).
- Bull. Soc. Sci. Phys. Nat. Toulouse*.—Bulletin de la Société des Sciences Physiques et Naturelles de Toulouse (Toulouse).
- Bull. Soc. Isère*.—Bulletin de la Société de Statistique des Sciences Naturelles, &c., du Département de l'Isère (Grenoble).

- Bull. Soc. Toulouse*.—Bulletin de la Société d'Histoire Naturelle de Toulouse.
- Bull. Soc. Vaud*.—Bulletin de la Société Vaudoise des Sciences Naturelles (Lausanne).
- Bull. Soc. Ven.-Trent*.—Buletino della Società Veneto-Trentina di Scienze Naturali (Padua). (Also *Atti*.)
- Bull. Soc. Yonne*.—Bulletin de la Société des Sciences Historiques et Naturelles de l'Yonne (Auxerre).
- Bull. Soc. Z. Fr.*—Bulletin de la Société Zoologique de France (Paris).
- Bull. U. S. Fish Comm.*—Bulletin of the United States Fish Commission (Washington).
- Bull. U. S. Geol. Surv.*—Bulletin of the United States Geological Survey (Washington).
- Bull. U. S. Nat. Mus.*—Bulletin of the United States National Museum (Washington). (Also *Proceedings*.)
- Bull. Washb. Coll.*—Bulletin of the Washburn Laboratory of Natural History (Topeka, Kansas).
- Canad. Ent.*—Canadian Entomologist (Saunders : Montreal).
- Can. Rec.*—Canadian Record of Science.
- Cardiff Nat. Soc.*—Cardiff Naturalists' Society. Report and Transactions (Cardiff).
- CB. Bakt. Parasit.*—Centralblatt für Bakteriologie und Parasitenkunde (Uhlhorn : Cassel).
- CB. Ges. Anthropol.*—Correspondenzblatt der deutschen Gesellschaft für Anthropologie, &c. (Brunswick).
- CB. Iris*—Correspondenz-Blatt des entomologischen Vereins Iris zu Dresden.
- CB. med. Wiss.*—Centralblatt für die medicinischen Wissenschaften (Berlin).
- CB. Ver. Regensb.*—(Now *Ber.*)
- CB. Ver. Rheinl.*—Correspondenz-Blatt des naturhistorischen Vereins der preussischen Rheinlande und Westphalens (Bonn). (Also *Verh. & SB.*)
- CB. Ver. Riga*—Correspondenzblatt des Naturforscher-Vereins zu Riga.
- Cellule*—La Cellule. Recueil de Cytologie et d'Histologie Générale (Carnoy, Gilson, & Denys : Lierre & Gand).
- Circ. deutsch. Fisch. Ver.*—Circulars des deutschen Fischerei-Vereins (Berlin).
- Comm. Ateneo Brescia*—Commentari dell' Ateneo di Brescia.
- Conch. Mittheil.*—Conchologische Mittheilungen (Martens : Cassel).
- Contr. E. M. Mus. Geol. Princeton*—Contributions from the E. M. Museum of Geology, Princeton College, U.S.A. (Scott & Osborn).

- C.R.*—Comptes rendus des Séances hebdomadaires de l'Académie des Sciences (Paris).
- C.R. Ass. Fr. Sci.*—Compte-rendu de l'Association Française pour l'avancement des Sciences.
- C.R. Ent. Belg.*—Comptes rendus des Séances de la Société Entomologique de Belgique (Brussels).
- C.R. Soc. Biol.*—Comptes rendus hebdomadaires des Séances et Mémoires de la Société de Biologie (Paris).
- C.R. Soc. L. Bord.*—Comptes Rendus de la Société Linnéenne de Bordeaux. (Also *Actes.*)
- Dan. Selsk. Skr.*—K. Danske Videnskabernes Selskabs Skrifter (Copenhagen).
- Denk. Ak. Wien*—Denkschriften der k. Akademie der Wissenschaften zu Wien (Vienna). (Also *SB.*)
- Deutsche e. Z.*—Deutsche entomologische Zeitschrift (Kraatz : Berlin).
- Échange*—L'Échange, Revue Linnéenne, organe des Naturalistes de la région Lyonnaise.
- E. Mus. Lund.*—E museo Lundii En Samling Af Afhandlingar (Lütken : Kjöbenhavn).
- Ent.*—The Entomologist (London).
- Ent. Am.*—Entomologica Americana (Brooklyn).
- Ent. Gen.*—L'Entomologiste Genevois. Journal mensuel d'Entomologie pure et appliquée (Geneva).
- Ent. M. M.*—The Entomologist's Monthly Magazine (London).
- Ent. Med.*—Entomologiske Meddelelser udgivne af Entomologisk Forening ved Fr. Meinert Copenhagen.
- Ent. Nachr.*—Entomologische Nachrichten (Karsch : Berlin).
- Ent. Tidskr.*—Entomologisk Tidskrift, på föranstaltande af Entomologiska Föreningen i Stockholm (Spångberg : Stockholm).
- Ért. Term. Kör.*—Értekezések a természettudományok köréből, Magyar tudományos Akadémia [Memoirs on Natural Science, Hungarian Academy of Sciences] (Budapesth).
- Ess. Nat.*—Essex Naturalist : being the Journal, Transactions, and Proceedings of the Essex Field Club (Buckhurst Hill).
- Études d'Ent.*—Études d'Entomologie, Faunes Entomologiques, Descriptions d'Insectes nouveaux ou peu connus (C. Oberthür : Rennes).
- Erkön. Erd. Muz.*—Ervkönyvek erdéli muzeumegylet (Kolozsvár = Klausenberg).
- Fauna*—Fauna. Comptes rendus des Sciences de la Société de Naturalistes Luxembourgeois.
- Feuill. Nat.*—Feuille des Jeunes Naturalistes (Dollfus : Paris).
- Field*—The Field (London).

*Field Club*.—The Field Club, with which is incorporated The Garner (London).

*For. & Str.*—Forest and Stream.

*Forh. Selsk. Chr.*—Forhandlinger i Videnskabs-Selskabet i Christiania.

*Förh. Sk. Naturf.*—Förhandlingar vid de Skandinaviska Naturforskarnes.

*Frelon*.—Le Frelon, journal d'Entomologie.

*Garner*—The Garner, &c. (now Field Club, *q.v.*).

*Gef. Welt*—Die gefiederte Welt: Zeitschrift für Vogelliebhaber, -zuchter und -händler (Russ: Berlin).

*Geol. Mag.*—Geological Magazine (Woodward: London).

*Giorn. Sci. Palerm.*—Giornale di Scienze Naturali ed Economiche di Palermo.

*Göteborgs Handl.*—Göteborgs kongl. Vetenskaps och Vitterhets samhälles Handlingar.

*Helios*—See *Mon. MT. Ver. Naturw. Frankfurt-a-O.*

*Hist. Berwick Nat. Club*—History of the Berwickshire Naturalists' Club (Alnwick).

*Hor. Ent. Ross.*—Horæ Societatis Entomologicæ Rossicæ (St. Petersburg).

*Humming Bird*.—The Humming Bird (Boucard: London).

*Ibis*—The Ibis (Selater: London).

*Ind. Mus. Notes*—Indian Museum Notes (Calcutta).

*Ins. Life*—Insect Life (Washington).

*Int. J. Micr.*—The International Journal of Microscopy & Natural Science (Allen & Spiers: London & New York).

*Irish Natural.*—The Irish Naturalist.

*Isvest. Mosc. Univ.*—Isvestiya imperatorskova obshchestva lyubitelei Estestvoznaniya, Antropologi i Etnografii Sostoyashova, pre Moskovskom Universitet.

*J. Ac. Philad.*—Journal of the Academy of Natural Sciences of Philadelphia.

*J. Agric. Soc. India*—Journal of the Agricultural and Horticultural Society of India (Calcutta).

*J. Anat. Phys.*—Journal of Anatomy and Physiology (London).

*J. A. S. B.*—Journal of the Asiatic Society of Bengal (Calcutta).

*J. A. S. (Bombay)*—Journal of the Bombay Branch of the Royal Asiatic Society.

*J. A. S. (Ceylon)*—Journal of the Ceylon Branch of the Royal Asiatic Society.

*J. A. S. (China)*—Journal of the China Branch of the Royal Asiatic Society.

*J. A. S. (Straits)*—Journal of the Straits Branch of the Royal Asiatic Society (Singapore).

- JB. Ak. Amst.*—Jaarboek van de k. Akademie van Wetenschappen (Amsterdam). (Also *Verhandl.*)
- JB. Mijnwezen*—Jaarboek van het Mijnwezen in Nederlandsch Oost-Indië (Amsterdam).
- JB. geol. Reichsanst.*—Jahrbuch der k.-k. geologischen Reichsanstalt (Vienna). (Also *Verhandl.*)
- JB. Hamb.*—Jahrbuch der Hamburgischen wissenschaftlichen Aultalten.
- JB. Karpath. Ver.*—Jahrbuch des Ungarischen Karpathen-Vereins (Kés-mark).
- JB. k. Akad. Erfurt*—Jahrbücher der königlichen Akademie gemeinnütziger Wissenschaften zu Erfurt.
- JB. k. preuss. geol. Landesanst.*—Jahrbuch der königlich preussischen geologischen Landesanstalt und Bergakademie zu Berlin.
- JB. mal. Ges.*—Jahrbuch der deutschen malakozoologischen Gesellschaft (Kobelt: Frankfort).
- JB. Mineral.*—Neues Jahrbuch für Mineralogie, Geologie, und Palæontologie (Leonard & Geinitz: Leipzig).
- JB. Mijnwezen Nederl. Indie*—Jaarboek van het Mijnwezen van Nederl. Oost Indie (Amsterdam).
- JB. Mus. Kärnt.*—Jahrbuch des naturhistorischen Landesmuseums von Kärnthén (Klagenfurt).
- JB. nass. Ver.*—Jahrbuch des nassauischen Vereins für Naturkunde (Wiesbaden).
- JB. Sieb. Karpath. Ver.*—Jahrbuch des Siebenbürgischen Karpathen-Vereins (Hermannstadt).
- Jahresber. fürst.-phän. Stat.*—Jahresbericht der fürstlich-phänologischen Stationen Deutschlands (Berlin).
- J. Ber. Annab. Ver.*—Jahresbericht des Annaberg-Buchholzer Vereins für Naturkunde (Annaberg).
- J. Ber. Ges. Graub.*—Jahresbericht der naturforschenden Gesellschaft Graubündens (Chur).
- J. Ber. Ges. Hannov.*—Jahresbericht der naturforschenden Gesellschaft in Hannover.
- J. Ber. k. Böhm. Ges. Wiss.*—Jahresbericht der königlich Böhmisohen Gesellschaft der Wissenschaften.
- J. Ber. Pollichia*—Jahresbericht der Pollichia eines naturwissenschaftlichen Vereins der Rheinpfalz (Dürkheim a. d. Hart).
- J. Ber. Schles. Ges.*—Jahresbericht der Schlesischen Gesellschaft für vaterländische Cultur (Breslau). (Also *Abhandl.*)
- J. Ber. Ver. Braunschw.*—Jahresbericht des Vereins für Naturwissenschaft zu Braunschweig (Brunswick).
- J. Ber. Ver. Frankfurt*—Jahresbericht des physikalischen Vereins zu Frankfurt-am-Main.
- J. Ber. Ver. Magdeburg*—Jahresbericht und Abhandlungen des naturwissenschaftlichen Vereins in Magdeburg.

- J. Ber. Ver. Osnabr.*—Jahresbericht des naturwissenschaftlichen Vereins zu Osnabrück.
- J. Ber. Ver. Zwickau*—Jahresbericht des Vereins für Naturkunde zu Zwickau.
- J. Ber. Westf. Ver.*—Jahresbericht der zoologischen Sektion des Westfälischen provincial-Vereins für Wissenschaft und Kunst (Münster).
- J. Bomb. N. H. Soc.*—The Journal of the Bombay Natural History Society (Phipson : Bombay).
- J. Brit. Dent. Ass.*—Journal of the British Dental Association (London).
- J. Cincinn. Soc.*—Journal of the Cincinnati Society of Natural History.
- J. Coll. Sci. Japan*—Journal of the College of Science, Imperial University, Japan (Tôkyô).
- J. de Conch.*—Journal de Conchyliologie (Crosse & Fischer : Paris).
- J. de l'Anat. Phys.*—Journal de l'Anatomie et de la Physiologie (Pouchet : Paris).
- J. Elisha Mitchell Sci. Soc.*—Journal of the Elisha Mitchell Scientific Society (Raleigh, N.C.).
- Jen. Z. Nat.*—Jenaische Zeitschrift für Naturwissenschaft, herausgegeben von der medicinisch-naturwissenschaftlichen Gesellschaft zu Jena.
- J. f. O.*—Journal für Ornithologie (Cabanis : Leipzig).
- JH. Ver. Lüneb.*—Jahreshefte des naturwissenschaftlichen Vereins für das Fürstenthum Lüneburg.
- JH. Ver. Württ.*—Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg (Stuttgart).
- J. Inst. Jamaica*—Journal of the Institute of Jamaica (Kingston).
- J. L. S.*—Journal of the Linnean Society ; Zoology (London).
- J. London Coll. Soc.*—Journal of the City of London College Society, London (Lewes).
- J. Mar. Biol. Ass.*—Journal of the Marine Biological Association (London & Plymouth).
- J. Morph.*—Journal of Morphology (Whitman & Allis : Boston, U.S.A.).
- J. Microgr.*—Journal de Micrographie (Pellétan : Paris).
- J. New Jersey N. H. Soc.*—Journal of the New Jersey Natural History Society (Trenton). (Formerly *J. Trenton Soc.*)
- J. Northampt. Soc.*—Journal of the Northamptonshire Natural History Society and Field Club.
- J. N. Y. Micr. Soc.*—Journal of the New York Microscopical Society (New York).
- J. of Conch.*—Journal [formerly Quarterly Journal] of Conchology (London).
- Johns Hopk. Univ. Circ.*—Johns Hopkins University Circulars (Baltimore).
- J. Physiol.*—The Journal of Physiology (Foster et alii : Cambridge).
- J. Quek. Club*—Journal of the Quekett Microscopical Club (London).

- J. R. Agric. Soc.*—Journal of the Royal Agricultural Society (London).  
*J. R. Inst. Cornwall*—Journal of the Royal Institution of Cornwall (Truro).  
*J. R. Micr. Soc.*—Journal of the Royal Microscopical Society (London).  
*J. R. Geol. Soc. Ireland*—Journal of the Royal Geological Society of Ireland (London, Dublin, and Edinburgh).  
*J. R. Soc. N. S. W.*—Journal and Proceedings of the Royal Society of New South Wales (Sydney).  
*J. Sci. Lisb.*—Jornal de Sciencias, &c., da Academia de Lisboa (Lisbon).  
*J. Tr. Vict. Inst.*—Journal of the Transactions of the Victoria Institute, or Philosophical Society of Great Britain (London).  
*Kansas quart.*—The Kansas University quarterly.  
*Kansas Scient.*—The Kansas City Scientist (Kansas). (Formerly *The Naturalist*).  
*Kosmos Lemberg*—Kosmos : Lemberg.  
*L'Ab.*—L'Abeille (Paris).  
*La Nature*—La Nature, Revue des Sciences, &c. (Tissandier : Paris).  
*L'Anthrop.*—L'Anthropologie (Paris).  
*Le Nat.*—Le Naturaliste (Deyrolle : Paris).  
*Leopoldina*—Leopoldina : Ämtlichen Organ für der k. Leopold-Carol. deutsch. Acad.  
*Lioar Man.*—Yn Lioar Manninagh. Published quarterly, for The Isle of Man Natural History and Antiquarian Society (Kermode : Ramsey).  
*Lotos*—Lotos, Jahrbuch für Naturwissenschaft im Auftrage des Vereines 'Lotos' (Prague).  
*Maandbl. Natuurw.*—Maandblad voor Naturwetenschappen (Amsterdam).  
*Mal. Bl.*—Malakozoologische Blätter (Clessin : Cassel).  
*Math. Nat. Ber. Ung.*—Mathematische und naturwissenschaftliche Berichte aus Ungarn. Mit Unterstützung der Ungarischen Akad. d. Wiss. und der K. Ungar. naturwiss. Ges. herausgegeben von Baron R. Eötvös, &c. (Fröhlich : Buda-Pesth).  
*Math. term. Értés*—Mathematikai és természettudományi Értésítő (Gyula : Buda-Pesth).  
*Math. term. köz.*—Mathematikai és természettudományi közlemények (Buda-Pesth).  
*Med. Nat.*—The Mediterranean Naturalist (Cooke : Malta).  
*Med. Soc. Fenn.*—Meddelanden af Societas pro Fauna et Flora Fennica (Helsingfors).  
*Mél. biol.*—Mélanges biologiques tirés du Bulletin de l'Académie impériale des Sciences de St. Petersburg.  
*Mem. Ac. Barcel.*—Memorias de la real Academia de Ciencias de Barcelona.

- Mém. Ac. Belg.*—Mémoires de l'Académie royale des Sciences, des Lettres, et des Beaux Arts de Belgique (Brussels). (Also *Bull.*)
- Mem. Acc. Bologn.*—Memorie della R. Accademia delle Scienze dell'Istituto di Bologna.
- Mém. Ac. Dijon*—Mémoires de l'Académie des Sciences, Arts, et Belles-Lettres de Dijon.
- Mém. Ac. Lyon*—Mémoires de l'Académie des Sciences, Belles-Lettres et Arts de Lyon (Lyon).
- Mem. Ac. Madrid*—Memorias de la real Academia de Ciencias Exactas Físicas, y Naturales de Madrid (Madrid).
- Mem. Acc. Mod.*—Memorie delle R. Accademia di Scienze, Lettere, ed Arti in Modena.
- Mém. Ac. Montp.*—Mémoires de la Section des Sciences de l'Académie des Sciences et Lettres de Montpellier.
- Mém. Ac. Pétersb.* (7)—Mémoires de l'Académie impériale des Sciences de St. Pétersbourg. 7me série.
- Mém. Ac. Savoie*—Mémoires de l'Académie des Sciences, Belles-Lettres, et Arts de Savoie (Chambéry). (Also *Comptes Rendus.*)
- Mém. Ac. Sci.*—Mémoires de l'Académie des Sciences (Paris).
- Mem. Ac. Sci. Lisboa*—Memorias da Academia real das Sciencias de Lisboa.
- Mem. Acc. Tor.*—Memorie della R. Accademia delle Scienze di Torino (Turin).
- Mém. Ac. Toulouse*—Mémoires de l'Académie des Sciences, &c., de Toulouse.
- Mém. Ac. Vaucluse*—Mémoires de l'Académie de Vaucluse (Avignon).
- Mem. Am. Ac.*—Memoirs of the American Academy of Arts and Sciences (Cambridge). (Also *Proceedings.*)
- Mem. Boll. Soc. Geogr. Ital.*—Memorie (Bollettino) della Società Geografica Italiana (Rome).
- Mem. Bost. Soc.*—Memoirs of the Boston Society of Natural History. (Also *Proceedings.*)
- Mem. California Acad.*—Memoirs of the Californian Academy of Sciences (San Francisco).
- Mém. Cour. Ac. Belg.* 4to.—Mémoires Couronnés et Mémoires des Savants Étrangers, publiés par l'Académie Royale des Sciences, des Lettres et des Beaux Arts de Belgique.
- Mém. Cour. Ac. Belg.* 8vo.—*Ibid.* 8vo.
- Mém. Inst. Génév.*—Mémoires de l'Institut national Genévois (Geneva).
- Mem. Ist. Lomb.*—Memorie del R. Istituto Lombardo di Scienze e Lettere (Milan).
- Mem. Ist. Venet.*—Memorie del R. Istituto Veneto di Scienze, &c. (Venice).
- Mém. Liège*—Mémoires de la Société royale des Sciences de Liège.
- Mem. Mus. C. Z.*—Memoirs of the Museum of Comparative Zoology at Harvard College (Cambridge, U.S.A.).

- Mem. Nat. Ac. Sci.*—Memoirs of the National Academy of Sciences (Washington).
- Mém.-prés. Ac. Sci.*—Mémoires présentés par divers savants à l'Académie des Sciences de l'Institut de France (Paris).
- Mém. Soc. Biol.*—(See *C.R.*)
- Mém. Soc. Bord.*—Mémoires de la Société des Sciences Physiques et Naturelles de Bordeaux.
- Mém. Soc. Cannes*—Mémoires de la Société des Sciences Naturelles et Historiques des Lettres et des Beaux-Arts de Cannes et de l'Arrondissement de Grasse (Cannes).
- Mém. Soc. Cherb.*—Mémoires de la Société nationale des Sciences Naturelles et Mathématiques de Cherbourg.
- Mém. Soc. Géol.*—Mémoires de la Société Géologique de France (Paris).
- Mém. Soc. Hainault*—Mémoires et publications de la Société des Sciences, des Arts, et des Lettres du Hainault (Mons).
- Mém. Soc. Lille*—Mémoires de la Société de l'Agriculture et des Arts de Lille.
- Mém. Soc. L. N. Fr.*—Mémoires de la Société Linnéenne du Nord de la France (Amiens).
- Mém. Soc. Maine et Loire*—Mémoires de la Société académique de Maine et Loire (Angers).
- Mem. Soc. Manch.*—Memoirs and Proceedings of the Manchester Literary and Philosophical Society (London).
- Mém. Soc. Oise*—Mémoires de la Société académique d'Archéologie des Sciences et Arts du département de l'Oise.
- Mém. Soc. Phys. Genève*—Mémoires de la Société de Physique et d'Histoire Naturelle de Genève.
- Mém. Soc. Saône*—Mémoires de la Société des Sciences Naturelles de Saône-et-Loire (Chalon-sur-Saône). (Also *Bulletin*.)
- Mém. Soc. Seine & Oise*—Mémoires de la Société des Sciences Naturelles et Médicales de Seine-et-Oise (Versailles).
- Mém. Soc. Zool.*—Mémoires de la Société Zoologique de France (Paris).
- Mid. Nat.*—The Midland Naturalist (Badger & Hillhouse: London & Birmingham).
- Monit. Zool. Ital.*—Monitore Zoologico Italiano (Chiarugi & Ficalbi: Florence.)
- Month. Int. J. Anat. Hist.*—Monthly International Journal of Anatomy and Histology (Paris, Leipsic, London).
- Morph. JB.*—Morphologisches Jahrbuch: eine Zeitschrift für Anatomie und Entwicklungsgeschichte (Gegenbaur: Leipzig).
- MT. Aargau. nat. Ges.*—Mittheilungen der Aargauischen naturforschenden Gesellschaft.

- MT. embr. Inst. Wien (n.s.)*—Mittheilungen aus dem embryologischen Institute der k. k. Universität in Wien. New series (Schenck : Vienna).
- MT. Ges. Bern*—Mittheilungen der naturforschenden Gesellschaft in Bern.
- MT. min. geol. Mus. Dresden*—Mittheilungen aus dem k. mineralogisch-geologischen und prähistorischen Museum in Dresden.
- MT. orn. Ver. Wien*—Mittheilungen des ornithologischen Vereins in Wien (Vienna).
- MT. Osterlande*—Mittheilungen aus dem Osterlande (Altenburg).
- MT. Schw. ent. Ges.*—Mittheilungen der Schweizerischen entomologischen Gesellschaft (Schaffhausen). (Also with French title.)
- MT. Ung. geol. Anst.*—Mittheilungen aus dem Jahrbuche der k. Ungarischen geologischen Anstalt (Buda-Pest).
- MT. Ver. Steierr.*—Mittheilungen des naturwissenschaftlichen Vereins für Steiermark (Graz).
- MT. Vorpomm.*—Mittheilungen aus dem naturwissenschaftlichen Vereine von Neu-Vorpommern und Rügen (Griefswald).
- MT. z. Stat. Neap.*—Mittheilungen aus der zoologischen Station in Neapel (Leipzig).
- 
- N. Act. Ups.*—Nova Acta R. Societatis Scientiarum Upsaliensis (Upsala).
- N. Acta Ac. L.-C. Nat. cur.*—Nova Acta Academiae Cæs. Leopoldino-Carolinæ Germaniæ Naturæ curiosorum (Leipzig). (Also *Verhandlungen der k. Leop. Carol. deutschen Acad. d. Naturf.*)
- N. Arch. Mus.*—Nouvelles Archives du Muséum d'Histoire Naturelle (Paris).
- N. Denk. Schw. Ges.*—Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesammten Naturwissenschaften.
- N. Mém. Soc. Helv.*—Nouveaux Mémoires de la Société Helvétique des Sciences Naturelles (Lausanne).
- N. Mém. Soc. imp. Moscou*—Nouveaux Mémoires de la Société impériale des Naturalistes de Moscou.
- N. Z. J. Sci.*—The New Zealand Journal of Science (Dunedin).
- Nachr. Ges. Götting.*—Nachrichten von der k. Gesellschaft der Wissenschaften und der Georg Auguste Universität zu Göttingen.
- Nachr. mal. Ges.*—Nachrichtsblatt der deutschen malakozologischen Gesellschaft (Frankfort).
- Nat. Canad.*—Le Naturaliste Canadien (Provancher : Cap Rouge, Quebec).
- Nat.-Hist. Tr. North. Durham*—Natural-History Transactions of Northumberland, Durham, and Newcastle-on-Tyne (London & Newcastle).

- Nat. Mex.*—La Naturaleza (Mexico).
- Nat. Sicil.*—Il Naturalista Siciliano : Giornale delle Scienze Naturali (Ragusa : Palermo).
- Nat. Tijdschr. Nederl. Ind.*—Natuurkundig Tijdschrift voor Nederlandsche Indie (Batavia).
- Nat. Notes*—Nature Notes, The Selborne Society's Magazine (Britten : London).
- Naturalist*—The Naturalist: Journal of the Yorkshire Naturalists' Union, &c. A Monthly Journal of Natural History for North of England (Roebuck & Clarke : London & Leeds).
- Natural Sci.*—Natural Science : a Monthly Review of Scientific Progress.
- Nature*—Nature (London).
- Nat. Ver. Haarlem*—Natuurkundige Verhandelingen van de Hollandsche Maatschappig der Wetenschappen te Haarlem (Haarlem).
- Nat. Ver. Utrecht*—Natuurkundige Verhandelingen Provinciaal Utrechtsch genootschap van Kunsten en Wetenschappen (Utrecht).
- Naut.*—The Nautilus (Pilsbry & Averell : Philadelphia).
- Neujahrsbl. Naturf. Ges.*—Neujahrsblatt herausgegeben von der Naturforschenden Gesellschaft (Zurich).
- Nor. Selsk. Skr.*—K. Norske Videnskabernes Selskabs Skrifter (Throndhjem).
- Notes Leyd. Mus.*—Notes from the Royal Zoological Museum of the Netherlands at Leyden (Jentink).
- Notizbl. Ver. Erdk. Darmstadt*—Notizblatt des Vereins für Erdkunde zu Darmstadt.
- Nunq. ot.*—Nunquam otiosus (Schaufuss : Dresden).
- Nyt. Mag. Naturv.*—Nyt Magazin for Naturvidenskaberne (Danielssen et alii : Christiania).
- Œfv. Ak. Förh.*—Œfversigt af k. Vetenskaps Akademiens Förhandlingar (Stockholm).
- Œfv. Finska Förh.*—Œfversigt af Finska Vetenskaps Societetens Förhandlingar (Helsingfors).
- Örn. JB.*—Ornithologisches Jahrbuch. Organ für die palæarktische Faunengebiet.
- Örn. MB.*—Ornithologische Monatsberichte herausgegeben von Dr. A. Reichenow, Berlin.
- Örn. Ool.*—Ornithologist & Oologist (Pawtucket, R. I.).
- Ornis*—Ornis : Internationale Zeitschrift für die gesammte Ornithologie (Blasius & Hayek : Vienna).
- Orvos-termesz. Értesítő.*—Orvos-termeszettudományi Értesítő (Kolozsvár = Klausenberg).
- Ottawa Nat.*—The Ottawa Naturalist. The Transactions of the Ottawa Field Naturalists' Club (Ottawa).

- Overs. Dan. Selsk.*—Oversigt over det k. Danske Videnskabernes Selskabs Forhandlinger (Copenhagen).
- P. Ac. Philad.*—Proceedings of the Academy of Natural Sciences of Philadelphia.
- P. Am. Ac.*—Proceedings of the American Academy of Arts and Sciences (Boston). (Also *Mem.*)
- P. Am. Ass.*—Proceedings of the American Association for the Advancement of Science. (Also *Mem.*)
- P. Am. Micr. Soc.*—Proceedings of the American Society of Microscopists (Buffalo).
- P. Am. Phil. Soc.*—Proceedings of the American Philosophical Society, &c. (Philadelphia). (Also *Trans.*)
- Pap. Soc. Brit. Columb.*—Papers and communications read before the Natural History Society of British Columbia (Victoria, B. C.).
- P. A. S. B.*—Proceedings of the Asiatic Society of Bengal (Calcutta).
- P. Bath. N. H. Soc.*—Proceedings of the Bath Natural History and Antiquarian Field Club.
- P. Belf. Soc.*—(See *Report.*)
- P. Biol. Soc. Washington*—Proceedings of the Biological Society of Washington.
- P. Birmingh. Phil. Soc.*—Proceedings of the Birmingham Philosophical Society.
- P. Birmingh. Soc.*—(See *Report.*)
- P. Bost. Soc.*—Proceedings of the Boston Society of Natural History (Boston, U.S.A.) (Also *Mem.*)
- P. Bristol Soc.*—Proceedings of the Bristol Naturalists' Society.
- P. Cal. Ac. Sci.*—Proceedings of the Californian Academy of Sciences (San Francisco). (Also *Trans.* and *Occas. Papers.*)
- P. Cambr. Phil. Soc.*—Proceedings of the Philosophical Society, Cambridge. (Also *Trans.*)
- P. Colorado Soc.*—Proceedings of the Colorado Scientific Society (Denver).
- P. Cottesw. Nat. F. C.*—Proceedings of the Cotteswold Naturalists' Field Club (Gloucester).
- P. Croydon Club*—Proceedings of the Croydon Microscopical and Natural History Club.
- P. Davenport Ac.*—Proceedings of the Davenport Academy of Natural Sciences (Davenport, Iowa).
- P. Dorset Field Club*—Proceedings of the Dorset Natural History and Antiquarian Field Club (Sherborne).
- P. E. Soc.*—Proceedings of the Entomological Society of London.
- P. E. Soc. Wash.*—Proceedings of the Entomological Society of Washington.

- P. Folkestone Soc.*—Proceedings of the Folkestone Natural History Society.
- P. Geol. Ass.*—Proceedings of the Geologists' Association (London).
- P. Hampshire Club*—Papers and Proceedings of the Hampshire Field Club (Southampton).
- P. Holmesdale Nat. Hist. Club*—Proceedings of the Holmesdale Natural History Club (London).
- P. Linn. Soc. N.S.W.*—Proceedings of the Linnean Society of New South Wales (Sydney).
- P. Liverp. Biol. Soc.*—Proceedings of the Liverpool Biological Society.
- P. Liverp. Field Club*—Proceedings of the Liverpool Naturalists' Field Club.
- P. Liverp. Soc.*—Proceedings of the Literary and Philosophical Society of Liverpool.
- P. London Amateur Soc.*—Proceedings of the London Amateur Scientific Society. Metropolitan Scientific Association and Society of Amateur Geologists (London).
- P. Newport Nat. Hist. Soc.*—Proceedings of the Newport Natural History Society.
- P. N. H. Soc. Glasg.*—Proceedings of the Natural History Society of Glasgow.
- P. N.-Scot. Inst.*—Proceedings and Transactions of the Nova-Scotian Institute of Natural Science (Halifax, N.-S.).
- P. Phil. Soc. Glasg.*—Proceedings of the Philosophical Society of Glasgow.
- P. Phys. Soc. Edinb.*—Proceedings of the Royal Physical Society of Edinburgh.
- P. Rochester Acad.*—Proceedings of the Rochester Academy of Science (Rochester, N.Y.).
- P. R. Inst.*—Proceedings of the Royal Institution of Great Britain (London).
- P. R. Irish Ac.*—Proceedings of the Royal Irish Academy (Dublin).
- P. R. Soc.*—Proceedings of the Royal Society (London).
- P. R. Soc. Edinb.*—Proceedings of the Royal Society of Edinburgh. (Also *Trans.*)
- P. R. Soc. Queensl.*—Proceedings of the Royal Society of Queensland (Brisbane).
- P. R. Soc. Tasm.*—Papers and Proceedings and Reports of the Royal Society of Tasmania (Hobarton).
- P. R. Soc. Viet.*—Proceedings of the Royal Society of Victoria (Melbourne). (Also *Trans.*)
- P. Soc. Manch.*—(See *Mem.*)
- P. Somerset. Soc.*—Proceedings of the Somersetshire Archæological and Natural History Society. New series (Taunton).

- P. Tr. Croydon Nat. Hist. Club*—Proceedings and Transactions of the Croydon Microscopical and Natural History Club (Croydon).
- P. U. S. Nat. Mus.*—Proceedings of the United States National Museum (Washington). (Also *Bull.*)
- P.-v. Soc. Mal. Belg.*—Procès-verbaux des séances de la Société Malacologique de Belgique (Brussels).
- P.-v. Soc. Tosc.*—Processi verbali della Società Toscana delle Scienze Naturali (Pisa).
- P. Warwick. Club*—Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club (Warwick).
- P. Z. S.*—Proceedings of the Zoological Society (London). (Also *Trans.*)
- Pal. Abh.*—Palæontologische Abhandlungen (Dames & Kayser : Berlin).
- Palæontogr.*—Palæontographica : Beiträge zur Naturgeschichte der Vorwelt (Cassel).
- Pal. Ind.*—Palæontologia Indica. (4to) Memoirs of the Geological Survey of India (Calcutta).
- Pal. Soc.*—Monographs of the Palæontological Society.
- Pam. Akad. umiej. wydz. przyr. Krakau*—Pamiętnik Akademii Umiejetnosci w Krakowie. Wydział matem. przyr (Cracow).
- Pam. Fizjogr.*—Pamiętnik Fizjograficzny (Warsaw).
- Phil. Tr.*—Philosophical Transactions of the Royal Society (London). (Also *Proc.*)
- Preisschr. Jblonovsk. Gesells. Leipsig*—Preisschriften gekrönt und herausgegeben von der fürstlich Jablonovski'schen Gesellschaft zu Leipsig
- Prodr. Zool. Vict.*—Prodromus of the Zoology of Victoria (McCoy : Melbourne).
- Protok. obsch. estest. Kazan*—Protokolui zasjedaniï obshchestva estestvoisputatelei pri imperatorskom Kazanskom Universitetye.
- Psyche*—Psyche, a Journal of Entomology. Published by the Cambridge Entomological Club (Cambridge, Mass., U.S.A.).
- Q. J. Geol. Soc.*—Quarterly Journal of the Geological Society (London).
- Q. J. Micr. Sci.*—Quarterly Journal of Microscopical Science (Lanckester et alii : London).
- Rad jugoslav. akad.*—Rad jugoslavenske akademije znanosti i umjetnosti (Zagreb). [Transactions of the South Slav Academy of Science and Art.]
- Rec. Austral. Mus.*—Records of the Australian Museum (Ramsay : Sydney).
- Rec. Geol. Surv. Ind.*—Records of the Geological Survey of India (Calcutta).
- Rec. Z. Suisse*—Recueil Zoologique Suisse (Fol : Geneva & Bâle).

- Rend. Acc. Nap.*—Rendiconto dell' Accademia delle Scienze Fisiche e Matematiche (Sezione della Società reale di Napoli).
- Rend. Ist. Lombardo*—Rendiconti del R. Istituto Lombardo delle Scienze e Lettere (Milan).
- Rep. Austr. Ass.*—Report of the Australasian Association for the Advancement of Science.
- Rep. Austr. Zool. Soc.*—Report of the South Australian Zoological and Acclimatization Society (Adelaide).
- Rep. Belfast Field Club*—Annual Report and Proceedings of the Belfast Naturalists' Field Club.
- Rep. Brighton Soc.*—Annual Report and Abstract of Proceedings of the Brighton and Sussex Natural History Society (Brighton).
- Rep. Brit. Ass.*—Report of the British Association for the Advancement of Science.
- Rep. Cornell Univ. Stat.*—Report of the Department of Entomology of the Cornell University Experiment Station (Comstock: Ithaca, N.Y.).
- Rep. Cornwall Polytechn.*—Reports of the Royal Polytechnical Society of Cornwall.
- Rep. Dep. Agric. Ent.*—Report of the Entomologist. From the Annual Report of the Department of Agriculture (Washington).
- Rep. E. Soc. Ont.*—Report of the Entomological Society of the Province of Ontario.
- Rep. Felsted Soc.*—Report of the Felsted School Natural History Society (Chelmsford).
- Rep. Fish. Scoll.*—Annual Report of the Fishery Board for Scotland (London, Edinburgh, & Dublin).
- Rep. Geol. Surv. Canada*—Report of the Geological and Natural History Survey and Museum of Canada (Montreal).
- Rep. Guernsey Soc.*—Report and Transactions; Guernsey Society of Natural Science and Local Research.
- Rep. Ins. Illin.*—Annual Report of the Noxious and Beneficial Insects of the State of Illinois (Springfield).
- Rep. Ins. N. York*—Annual Report of the Injurious and other Insects of New York (Lintner: Albany).
- Rep. Leeds Soc.*—Leeds Philosophical and Literary Society. The Annual Report (Leeds).
- Rep. Marl. Coll. Soc.*—Report of the Marlborough College Natural History Society.
- Rep. N. Staffordsh. Club*—North Staffordshire Naturalists' Field Club and Archæological Society. Annual Report and Transactions.
- Rep. N. Y. Mus.*—Annual Report of the New York State Museum of Natural History (Albany).
- Rep. & P. Belfast N. H. Soc.*—Report and Proceedings of the Belfast Natural History and Philosophical Society.

- Rep. Penzance Soc.*—Report and Transactions of the Penzance Natural History and Antiquarian Society.
- Rep. Plym. Inst.*—Annual Report and Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society (Plymouth).
- Rep. Rugby Soc.*—Report of the Rugby School Natural History Society.
- Rep. Southport Soc.*—The . . . Report of the Southport Society of Natural Science.
- Rep. Tr. Devon Ass.*—Report and Transactions of the Devonshire Association for the Advancement of Science, &c. (Plymouth).
- Rep. U. S. Ent. Comm.*—Report of the United States Entomological Commission (Washington).
- Rep. U. S. Fish. Comm.*—Report of the Commissioner, United States Commission of Fish and Fisheries (Washington).
- Rep. U. S. Geol. Surv.*—Annual Report of the United States Geological Survey (Washington).
- Rep. U. S. Nat. Mus.*—Annual Report of the Board of Regents of the Smithsonian Institution. Report of the National Museum (Washington).
- Rep. Wellington Soc.*—Report of the Wellington College Natural Science Society (Wellington Coll.).
- Rep. Yorks. Phil. Soc.*—Report of the Council of the Yorkshire Philosophical Society.
- Rev. Arg. Hist. Nat.*—Revista Argentina de Historia Natural. (Ameghino : Buenos Ayres.)
- Rev. Biol.*—Revue Biologique du Nord de la France (Barrois, Hallez, Moniez : Lille).
- Rev. Cien. Madrid*—Revista de los progresos de las Ciencias Exactas, Físicas, y Naturales (Madrid).
- Rev. Cient. Univ. Venezuela*—Revista Científica mensual de la Universidad Central de Venezuela (Caracas).
- Rev. d'Ent.*—Revue d'Entomologie, publié par la Société Française d'Entomologie (Fauvel : Caen).
- Rev. Mus. la Plata*—Revista del Museo de la Plata (Ameghino : la Plata).
- Rev. Quest. Sci.*—Revue des Questions Scientifiques publiée par la Société scientifique de Bruxelles (Brussels).
- Rev. Sci.*—Revue Scientifique de la France et de l'Étranger (Paris).
- Rev. Sci. Bourb.*—Revue Scientifique du Bourbonnais et du centre de la France (Olivier : Moulins).
- Rev. Sci. Nat. Oporto*—Revista de Ciencias Naturaes e Socias (Severo & Peixoto : Porto).
- Rev. Sci. Nat. Ouest*—Revue des Sciences Naturelles de l'Ouest (Paris).
- Rev. Sci. Nat. St. Pétersb.*—Revue des Sciences naturelles. Publiée par la Société des Naturalistes à St. Pétersbourg (St. Petersburg).

- Rev. Soc. Porto*—Revista da Societa de Instrucção de Porto (Oporto).  
*Rev. Tierheilkunde*—Revue für Tierheilkunde und Tierzucht (Vienna).  
*Rev. Tr. Sci.*—Revue des Travaux Scientifiques (Paris).  
*Rev. Zool.*—Revue Zoologique.  
*Riv. Ital. Sci. Nat.*—Rivista italiana di Scienze Naturali e Bollettino del Naturalista Collettore, Allevatore, Coltivatore (Brogi: Siena).  
*Rochester Nat.*—The Rochester Naturalist (Rochester).
- S. E. Z.*—Stettiner entomologische Zeitung (Dohn: Stettin).  
*Samm. Geol. Mus. Leid.*—Sammlungen des Geologischen Reichsmuseums in Leiden.  
*Samm. naturw. Vorträge*—Sammlung naturwissenschaftlicher Vorträge (Huth: Berlin).  
*SB. Ak. Berlin*—Sitzungsberichte der königlich Preussischen Akademie der Wissenschaften zu Berlin (formerly Bericht and Monatsbericht). (Also *Abhandl.*)  
*SB. Ak. Wien*—Sitzungsberichte der mathematische-naturwissenschaftlichen Classe der k. Akademie der Wissenschaften (Vienna). (Also *Denkschriften.*)  
*SB. Bayer. Ak.*—Sitzungsberichte der mathematisch-physikalischen Classe der k. Bayerischen Akademie der Wissenschaften (Munich). (Also *Abhandl.*)  
*SB. Böhm. Ges.*—Sitzungsberichte der k. Böhmisches Gesellschaft der Wissenschaften (Prague). (Also *Abhandl.*)  
*SB. Ges. Dorp.*—Sitzungsberichte der Naturforscher-Gesellschaft bei der Universität Dorpat (Dragendorff: Dorpat). (Also *Schriften.*)  
*SB. Ges. Isis*—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft 'Isis' (Dresden). (Also *Abhandl.*)  
*SB. Ges. Königsb.*—Sitzungsberichte der k. physikalisch-ökonomischen Gesellschaft in Preussen (Königsberg). (See *Schr. Ges. Königsb.*)  
*SB. Ges. Leipzig*—Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig.  
*SB. Ges. Marb.*—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg.  
*SB. Ges. Morph.*—Sitzungsberichte der Gesellschaft für Morphologie und Physiologie in München (Munich).  
*SB. Ges. Würzb.*—Sitzungsberichte des physikalisch-medicinischen Gesellschaft zu Würzburg. (Also *Verh.*)  
*SB. nat. Fr.*—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin.  
*SB. niederrhein. Ges.*—Sitzungsberichte der niederrheinischen Gesellschaft für Natur- und Heilkunde (Bonn). (Published with *Verh. & CB. Ver. Rheinl.*)  
*SB. Soc. Erlangen*—Sitzungsberichte der physikalisch-medicinischen Societät zu Erlangen.

- SB. z.-b. Wien*—Sitzungsberichte der zoologisch-botanischen Gesellschaft in Wien (Vienna). (Also *Verh.*)
- Schr. Ges. Danz.*—Neueste Schriften der naturforschenden Gesellschaft zu Danzig.
- Schr. Ges. Königsb.*—Schriften der physikalisch-ökonomischen Gesellschaft zu Königsberg in Preussen.
- Schr. gesamt. Naturw. Marburg*—Schriften der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg.
- Schr. Nat. ges. Dorpat.*—Schriften herausgegeben von der Naturforschergesellschaft bei der Universität Dorpat. (Also *SB.*)
- Schr. Nat. Ver. Schleswig*—Schriften des naturwissenschaftlichen Vereins für Schleswig-Holstein (Kiel).
- Schr. Ver. Harzes*—Schriften des naturwissenschaftlichen Vereins des Harzes in Wernigerode.
- Schr. Univ. Kiel*—Schriften der Universität zu Kiel.
- Science*—Science (Dall : Cambridge, Mass.).
- Sci. Goss.*—Hardwick's Science Gossip (Taylor : London).
- Sci. P. R. Dubl. Soc.*—Scientific Proceedings of the Royal Dublin Society.
- Sci. Tr. R. Dublin Soc.* (2)—The Scientific Transactions of the Royal Dublin Society. Second Series.
- Scot. Nat.*—The Scottish Naturalist (Clarke : Perth).
- Smiths. Contrib. Knowledge*—Smithsonian Contributions to Knowledge (Washington).
- Smiths. Misc. Coll.*—Smithsonian Miscellaneous Collections (Washington).
- Smiths. Report*—Annual Report of the Board of Regents of the Smithsonian Institution, &c. (Washington).
- Soc. Ent.*—Societas Entomologica.
- Soc. Agric. Pyrén.-orient.*—Société Agricole Scientifique et Littéraire des Pyrénées-orientales (Perpignan).
- Sprawozd. Kom. fizyogr.*—Sprawozdanie Komisji fizyograficznej, &c. (Cracow).
- Stavanger Mus.*—Stavanger Museums Aarsberetning.
- Stud. Biol. Lab. J. Hopkins Univ.*—Studies at the Biological Laboratory of the Johns Hopkins University (Baltimore).
- Stud. Mus. Dundee*—Studies from the Museum of Zoology in University College, Dundee (D'Arcy Thompson : Dundee).
- Sv. Ak. Handl.*—K. Svenska Vetenskaps-Akademiens Handlingar (Stockholm).
- Tag. Deut. Nat. Vers.*—Tageblatt der Versammlung deutscher Naturforscher und Aertzte.
- Tijdschr. Ent.*—Tijdschrift voor Entomologie (The Hague).
- Tijdschr. Ind. Volkenkund*—Tijdschrift voor Indische Taal-, Land- en Volkenkunde, etc. (Brandes & Abendann, Batavia and the Hague).

- Tijdschr. Nederl. Dierk. Ver.* (2)—Tijdschrift van de Nederlandsche Dierkundige Vereeniging (Leyden).
- Tijdschr. Nederl. Ind.*—Naturkundig Tijdschrift voor Nederlandsch Indië (Batavia).
- Timehri*—Timehri: being the Journal of the Royal Agricultural and Commercial Society of British Guiana (Quelch : Demerara).
- Termes Közlöny*—Természettudományi Közlöny kiadja a k. magyar termeszett. Társulat (Budapest).
- Term. füzetek*—Természettudományi füzetek : kiadja a magyar remzeti Múzeum (Journal of Zoology, &c., edited by Hungarian Museum at Budapesth).
- Tr. Albany Inst.*—Transactions of the Albany Institute. (Formerly *Proceedings* also).
- Tr. Am. Phil. Soc.*—Transactions of the American Philosophical Society, &c. (Philadelphia). (Also *Proceedings*).
- Tr. Am. Ent. Soc.*—Transactions of the American Entomological Society (Philadelphia).
- Tr. A. S. Japan*—Transactions of the Asiatic Society of Japan (Yokohama).
- Tr. Camb. Phil. Soc.*—Transactions of the Cambridge Philosophical Society. (Also *Proceedings*).
- Tr. City London Soc.*—Transactions of the City of London Entomological and Natural History Society (London).
- Tr. Conn. Ac.*—Transactions of the Connecticut Academy of Sciences (New Haven).
- Tr. Croydon Club.*—(See *Proceedings*.)
- Tr. Cumberl. Westmorl. Ass.*—Transactions of the Cumberland and Westmoreland Association for the Advancement of Literature and Science (Carlisle).
- Tr. Dumfries Nat. Hist. Soc.*—The Transactions and Journal of Proceedings of the Dumfries and Galloway Natural History and Antiquarian Society (Dumfries).
- Tr. Edin. Geol. Soc.*—Transactions of the Edinburgh Geological Society.
- Tr. Edinb. Nat. Soc.*—Transactions of the Edinburgh Field Naturalists' and Microscopical Society.
- Tr. Ess. Club = Ess. Nat.*—Essex Naturalist: being the Journal, Transactions, and Proceedings of the Essex Field Club (Buckhurst Hill).
- Tr. E. Kent Nat. Hist. Soc.*—Transactions of the East Kent Natural History Society (Canterbury).
- Tr. E. Soc.*—Transactions of the Entomological Society of London.
- Tr. Hertf. Soc.*—Transactions of the Hertfordshire Natural History Society and Field Club (Watford).
- Tr. Kansas Ac.*—Transactions of the Kansas Academy of Science (Topeka).

- Tr. Leicester Soc.*—Transactions of the Leicester Literary and Philosophical Society (Leicester).
- Tr. L. S.*—Transactions of the Linnean Society, London. (Also *Journal*.)
- Tr. L. S. New York*—Transactions of the Linnean Society of New York.
- Tr. Manch. Geol. Soc.*—Transactions of the Manchester Geological Society.
- Tr. Manch. Micr. Soc.*—Transactions of the Manchester Microscopical Society.
- Tr. Maryland Ac. Sci.*—Transactions of the Maryland Academy of Sciences.
- Tr. Norw. Soc.*—Transactions of the Norfolk and Norwich Naturalists' Society (Norwich).
- Tr. Notts. Soc.*—Transactions of the Nottingham Naturalists' Society.
- Tr. N. York Ac. Sci.*—Transactions of the New York Academy of Sciences (New York). (Also *Annals*.)
- Tr. N. Z. Inst.*—Transactions and Proceedings of the New Zealand Institute (Wellington).
- Tr. Odont. Soc.*—Transactions of the Odontological Society.
- Tr. Ottawa Nat. Club*—Transactions of the Ottawa Field-Naturalists' Club. (Also called *Ottawa Naturalist*.)
- Tr. & P. Perthsh. Soc.*—Transactions and Proceedings of the Perthshire Society of Natural Science (Perth).
- Tr. R. Irish Ac.*—Transactions of the Royal Irish Academy (Dublin).
- Tr. S. African Phil. Soc.*—Transactions of the South African Philosophical Society (Cape Town).
- Tr. R. Soc. Canada*—Proceedings and Transactions of the Royal Society of Canada (Montreal).
- Tr. R. Soc. Edinb.*—Transactions of the Royal Society of Edinburgh.
- Tr. R. Soc. S. Austr.*—Transactions of the Royal Society of South Australia (Adelaide).
- Tr. R. Soc. Vict.*—Transactions of the Royal Society of Victoria. (Also *Proceedings*.)
- Tr. Shropshire Soc.*—Transactions of the Shropshire Archæological and Natural History Society (Shrewsbury and Oswestry).
- Tr. Stirling Soc.*—Transactions of the Stirling Natural History and Archæological Society.
- Tr. St. Louis Acad.*—Transactions of the Academy of Science of St. Louis.
- Tr. Texas Ac.*—Transactions of the Texas Academy of Science.
- Tr. Wagner Inst.*—Transactions of the Wagner Free Institute of Science of Philadelphia.
- Tr. Wisconsin Acad.*—Transactions of the Wisconsin Academy of Sciences, Arts, and Letters (Madison). (Also *Bulletin*.)

- Tr. Woolhope Nat.*—Transactions of the Woolhope Naturalists' Field Club (Hereford).
- Tr. Yorksh. Union*—Transactions of the Yorkshire Naturalists' Union (London & Leeds).
- Tr. Z. S.*—Transactions of the Zoological Society (London).
- Trav. Inst. Zool. Lille*—Travaux de l'Institut Zoologique de Lille et de la Station maritime de Wimereux (Lille).
- Trav. Lab. Histol.*—Travaux du Laboratoire d'Histologie du Collège de France, École pratique des Hautes Études (Ranvier : Paris).
- Trav. Soc. Univ. Kharkow*—Travaux de la Société des Naturalistes à l'Université impériale de Kharkow.
- Trav. Soc. Varsovie*—Travaux de la Société des Naturalistes de Varsovie. Comptes rendus de la section biologique. (Also *Protokolui otdyeleniya biologhii* [Warsaw].)
- Trencsén term. egy.* — Trencsén mezzei természettudományi egysület (Trencsin).
- Tromsø Mus. Aarsk.*—Tromsø Museum's Aarshefter.
- Trudui Kazan. Univ.* — Trudui obshchestva estestvoispuitatelei pri imperatorskom Kazanskom Universitetye.
- Trudui Kharkoff Univ.* — Trudui obshchestva ispuitatelei prihody pre imp. Kharkovskom Universitetye (Kharkoff).
- Trudui obsch. est.*—Trudui obshchestva estestvoispuitatelei pri Imperatorikom Varshavskom Universitetye (Warsaw).
- Trudui Russ. Est.*—Trudui sezda russkich estestvoispuitatelei.
- Trudui St. Petersburg Est.*—Trudui sanct Petersburgskagho obshchestva estestvoispuitatelei. (Called also Travaux de la Société des Naturalistes de St. Petersburg.)
- Unters. Nat.*—Untersuchungen zur Naturlehre des Menschen und der Thiere (Moleschott : Giessen).
- Upsala Univ. Årsskrift*—Upsala Universitets Årsskrift (Upsala). (Also *Act. Upsala.*)
- Verh. Ak. Amst.*—Verhandelingen der koninklijke Akademie van Wetenschappen (Amsterdam). (Also *JB.*)
- Verh. Anat. Ges.*—Verhandlungen der anatomischen Gesellschaft (Jena : published with *Anat. Anz.*).
- Verh. anthrop. Ges.*—Verhandlungen der Berliner anthropologischen Gesellschaft (Berlin).
- Verh. deutsch. Naturf.*—Verhandlungen der Gesellschaft deutscher Naturforscher und Ärzte (Leipzig or elsewhere).
- Verh. deutsch. odont. Ges.*—Verhandlungen der deutschen odontologischen Gesellschaft.
- Verh. deutsch. Zool. Ges.*—Verhandlungen der deutschen zoologischen Gesellschaft.

- Verh. geol. Reichsanst.*—Verhandlungen der k.-k. geologischen Reichsanstalt (Vienna). (Also *JB.*)
- Verh. Ges. Basel*—Verhandlungen der naturforschenden Gesellschaft in Basel (Bâle).
- Verh. Ges. Würzb.*—Verhandlungen der physikalisch-medicinischen Gesellschaft zu Würzburg. (Also *SB.*)
- Verh. k. Leopold. Carol. Akad. Naturf.*—(See *N. Act. Ac. Leop. Carol. Nat. cur.*)
- Verh. naturw. Ver. Karlsruhe*—Verhandlungen des naturwissenschaftlichen Vereins in Karlsruhe.
- Verh. schweiz. Naturf. Ges.*—(See *Act. Soc. Helv.*)
- Verh. Siebenb. Ver.*—Verhandlungen und Mittheilungen des Siebenbürgischen Vereins für Naturwissenschaften (Hermannstadt).
- Verh. Ver. Brünn*—Verhandlungen des naturforschenden Vereins in Brünn.
- Verh. Ver. Hamb.*—Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg.
- Verh. Ver. Heidelb.*—Verhandlungen des naturhistorisch-medicinischen Vereins zu Heidelberg.
- Verh. Ver. Presburg*—Verhandlungen des Vereins für Natur- und Heilkunde zu Presburg.
- Verh. Ver. Rheinl.*—Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westphalen (Bonn). (Also *CB.*)
- Verh. z.-b. Wien*—Verhandlungen der kaiserlichen-königlichen zoologisch-botanischen Gesellschaft in Wien (Vienna). (Also *SB.*)
- Verh. d. Ver. Santiago*—Verhandlungen des Deutschen wissenschaftlichen Vereines zu Santiago (Santiago, Chili).
- Versl. Ak. Amst.*—Verslagen en Mededeelingen der k. Akademie van Wetenschappen (Amsterdam).
- Vict. Nat.*—Victorian Naturalist, The Journal and Magazine of the Field Naturalists' Club of Victoria (Melbourne).
- Vid. Medd.*—Videnskabelige Meddelelser fra den naturhistoriske Forening (Copenhagen).
- Viert. Ges. Zürich*—Vierteljahrschrift der naturforschenden Gesellschaft in Zürich (Wolf : Zürich).
- West Am. Scientist*—The West American Scientist (San Diego).
- Wien. ent. Z.*—Wiener entomologische Zeitung (Vienna).
- Wilt. Mag.*—The Wiltshire Archæological and Natural History Magazine (Devizes).
- York. Phil. Soc.*—Yorkshire Philosophical Society Annual Report (York).
- Z. Biol.*—Zeitschrift für Biologie (München).
- Z. Ent. Bresl.*—Zeitschrift für Entomologie (Breslau).

- Z. Ferdinand. Tirol Vorarlberg*.—Zeitschrift des Ferdinandeums für Tirol und Vorarlberg (Innsbrück).
- Z. f. Ethnol.*.—Zeitschrift für Ethnologie (Bastian & Hartmann : Berlin).
- Z. f. Thiermed.*.—Zeitschrift für Thiermedizin und vergleichende Pathologie).
- Z. geol. Ges.*.—Zeitschrift der deutschen geologischen Gesellschaft (Berlin).
- Z. ges. Orn.*.—Zeitschrift für die gesammte Ornithologie (Von Madarász : Budapest).
- Z. Naturw.*.—Zeitschrift für Naturwissenschaften. Original Abhandlungen und Berichte herausgegeben im Auftrage der naturwissenschaftlichen Vereins für Sachsen und Thüringen (Brass : Halle-a-S.).
- Z. Orn.*.—Zeitschrift für Ornithologie und praktischen Geflug.
- Z. wiss. Mikr.*.—Zeitschrift für wissenschaftliche Mikroskopie und für mikroskopische Technik (Berens : Braunschweig).
- Z. wiss. Zool.*.—Zeitschrift für wissenschaftliche Zoologie (Köl liker & Ehlers : Leipzig).
- Zapiski Kiev.*.—Zapīskī Kievskagho Obshchestva Estestvoīspuitateī (Kieff).
- Zapiski Novoross. Obsch. Estestv.*.—Zapīskī Novorossiskagho Obshchestva Estestvoīspuitateī (Odessa).
- Zoe*.—Zoe : A Biological Journal (San Francisco).
- Zool.*.—The Zoologist (Harting : London).
- Zool. Anz.*.—Zoologischer Anzeiger (Carus : Leipzig).
- Zool. Beitr.*.—Zoologische Beiträge (Breslau).
- Zool. Gart.*.—Der Zoologische Garten (Noll : Frankfort).
- Zool. Jahrb.*.—Zoologische Jahrbücher (Spengel : Giessen).
- Zool. JB.*.—Zoologischer Jahresbericht (Mayer & Giesbrecht : Berlin).
- Zool. Mag.*.—The Zoological Magazine (Tokyo).
- Zool. Rec.*.—The Zoological Record (Zool. Soc. : London).
- Zool. Vort.*.—Zoologische Vorträge herausgegeben von William Marshall (Leipzig).

---

An asterisk prefixed to a quotation signifies that the Recorder has not seen the journal or work referred to.

## ERRATA.

---

INSECTA, p. 107, top line, for "*Pryacoderus*," read "*Pyracoderus*."

INSECTA, p. 139, line 11 from top, after "*Tactoderus*" add "n. g."

INSECTA, p. 139, line 12 from top, transfer "*Tænophthalmus costifer*" to p. 158, it being a Curculionid.

# CONTENTS.

## I. GENERAL SUBJECTS. By J. ARTHUR THOMSON, M.A.

	Page		Page
Titles . . . . .	1	Oogenesis, Spermatogenesis,	
Subject-Index . . . . .	36	Fertilisation . . . . .	44
Text Books, Essays, & General	36	Sex, Reproduction, Heredity .	46
Cell and Protoplasm . . . . .	42	Evolution . . . . .	49

## II. MAMMALIA. By R. LYDEKKER, B.A., F.G.S.

Introduction . . . . .	1	Carnivora . . . . .	28
The General Subject . . . . .	2	Rodentia . . . . .	32
Faunas . . . . .	21	Ungulata . . . . .	36
Special Structures, Develop-		Cetacea . . . . .	48
ment, &c. . . . .	21	Sirenia . . . . .	51
Special Work . . . . .	22	Edentata . . . . .	51
Primates . . . . .	22	Marsupialia . . . . .	52
Chiroptera . . . . .	25	Monotremata . . . . .	54
Insectivora . . . . .	27	Multituberculata . . . . .	55

## III. AVES. By R. BOWDLER SHARPE, LL.D.

Titles . . . . .	1	Carinatae—	
Faunistic . . . . .	24	Lariformes . . . . .	32
Anatomy and Miscellaneous .	24	Ægialitornithiformes . . . .	32
Systematic . . . . .	24	Charadriiformes . . . . .	33
Ratitæ . . . . .	24	Gruiformes . . . . .	34
Struthioniformes . . . . .	24	Pelargiformes . . . . .	34
Casuariiformes . . . . .	24	Tapinopiformes . . . . .	35
Dinornithiformes . . . . .	25	Phænicopteriformes . . . . .	35
Æpyornithiformes . . . . .	25	Anseriformes . . . . .	35
Apterygiformes . . . . .	25	Pelecaniformes . . . . .	36
Carinatae . . . . .	25	Cathartidiformes . . . . .	36
Crypturiformes . . . . .	25	Accipitriformes . . . . .	37
Galliformes . . . . .	25	Striges . . . . .	39
Columbiformes . . . . .	28	Coraciiformes . . . . .	40
Opisthocomiformes . . . . .	29	Trogones . . . . .	46
Ralliformes . . . . .	29	Coccyges . . . . .	46
Podicipedidiformes . . . . .	31	Psittaciformes . . . . .	47
Colymbiformes . . . . .	31	Scansores . . . . .	48
Hesperornithiformes . . . .	31	Eurylæmi . . . . .	49
Procellariiformes . . . . .	31	Menuræ . . . . .	49
Alciformes . . . . .	32	Passeriformes . . . . .	49

## IV. REPTILIA AND BATRACHIA. By G. A. BOULENGER.

	Page		Page
Titles . . . . .	1	Emydosauria . . . . .	31
Works and Papers . . . . .	16	Chelonia . . . . .	32
Faunæ . . . . .	17	Ichthyosauria . . . . .	33
Palæontological . . . . .	20	Plesiosauria . . . . .	33
REPTILIA . . . . .	20	Thecodontia . . . . .	34
Squamata . . . . .	21	Acrosauria . . . . .	34
Lacertilia . . . . .	21	Rhynchocephalia . . . . .	34
Rhiptoglossa . . . . .	25	Anomodontia . . . . .	35
Dolichosauria . . . . .	25	BATRACHIA . . . . .	35
Pythonomorpha . . . . .	25	Ecaudata . . . . .	36
Ophidia . . . . .	26	Caudata . . . . .	39
Ornithosauria . . . . .	30	Apoda . . . . .	41
Dinosauria . . . . .	31	Stegocephala . . . . .	41

## V. PISCES. By G. A. BOULENGER.

Titles . . . . .	1	Ostracodermi . . . . .	34
General Subject . . . . .	15	Antiarcha . . . . .	34
Faunæ . . . . .	17	Osteostraci . . . . .	34
Palæontology . . . . .	19	Heterostraci . . . . .	35
Teleostomi . . . . .	20	Holocephali . . . . .	35
Teleostei . . . . .	20	Elasmobranchii . . . . .	35
Acanthopterygii . . . . .	20	Acanthodii . . . . .	35
A. Pharyngognathi . . . . .	24	Selachii . . . . .	35
Anacanthini . . . . .	24	Asterozondyli . . . . .	36
Physostomi . . . . .	25	Tectospondyli . . . . .	36
Plectognathi . . . . .	31	Ichthyotomi . . . . .	37
Ganoidei . . . . .	32	Incertæ sedis . . . . .	37
Crossopterygii . . . . .	33	Cyclostomi . . . . .	38
Dipnoi . . . . .	33	Leptocardi . . . . .	38

## VI. TUNICATA. By PROF. W. A. HERDMAN, D.Sc.

List of Publications . . . . .	1	Geographical Distribution . . . . .	6
Anatomy, &c. . . . .	3	Systematic . . . . .	6

## VII. MOLLUSCA. By B. B. WOODWARD, F.G.S., F.R.M.S.

Titles . . . . .	1	Gastropoda . . . . .	56
Anatomy, Physiology, &c. . . . .	29	Pulmonata . . . . .	56
Distribution . . . . .	37	Stylommatophora . . . . .	56
Geographical . . . . .	37	Basommatophora . . . . .	67
Geological . . . . .	48	Opisthobranchiata . . . . .	68
Systematic . . . . .	53	Nudibranchiata . . . . .	68
Cephalopoda . . . . .	53	Tectibranchiata . . . . .	69
Dibranchiata . . . . .	53	Prosobranchiata . . . . .	70
Octopoda . . . . .	53	Nucleobranchiata . . . . .	70
Decapoda . . . . .	54	Pectinibranchiata . . . . .	71
Ammonea . . . . .	54	Scutibranchiata . . . . .	84
Tetrabranchiata . . . . .	55	Polyplacophora . . . . .	88

MOLLUSCA—*continued*.

	Page		Page
Aplacophora . . . . .	89	Pelecypoda—	
Scaphopoda . . . . .	89	Pseudolamellibranchiata .	94
Pelecypoda . . . . .	90	Filibranchiata . . . . .	95
Septibranchiata . . . . .	90	Protobranchiata . . . . .	95
Eulamellibranchiata . . . .	90	Incerta sedes . . . . .	96

## VIII. BRACHIOPODA. By B. B. WOODWARD, F.G.S., F.R.M.S.

Titles . . . . .	1	Systematic—	
Anatomy, &c. . . . .	3	Inarticulata . . . . .	5
Distribution—Geographical . .	4	Articulata . . . . .	6
Geological . . . . .	4		

## IX. BRYOZOA (POLYZOA). By B. B. WOODWARD, F.G.S., F.R.M.S.

Titles . . . . .	1	Systematic—	
Anatomy, &c. . . . .	2	Entoprocta . . . . .	4
Distribution—Geographical . .	3	Ectoprocta . . . . .	4
Geological . . . . .	3		

## X. CRUSTACEA (including GIGANTOSTRACA and PANTOPODA).

By R. INNES POCK.

Titles . . . . .	1	Edriophthalma.	
Anatomy, Physiology, Embry- ology, Distribution. . . . .	13	Cumacæ . . . . .	25
Systematic . . . . .	16	Amphipoda . . . . .	25
Malacostraca.		Isopoda . . . . .	27
Podophthalma.		Entomostraca.	
Decapoda.		Phyllopoda . . . . .	29
Brachyura . . . . .	16	Cladocera . . . . .	29
Oxystomata . . . . .	19	Ostracoda . . . . .	29
Anomura . . . . .	20	Copepoda . . . . .	30
Macrura . . . . .	22	Cirripedia . . . . .	31
Schizopoda . . . . .	24	Pantopoda . . . . .	32
		Gigantostraca . . . . .	33

## XI. ARACHNIDA. By R. INNES POCK.

Titles of Papers . . . . .	1	Systematic—	
Anatomy, Embryology, Physi- ology, Habits, &c. . . . .	11	Pedipalpi . . . . .	14
Distribution . . . . .	13	Araneæ . . . . .	14
Systematic—		Pseudoscorpiones . . . . .	33
Scorpiones . . . . .	14	Opiliones . . . . .	34
		Acari . . . . .	35

## XII. MYRIOPODA AND PROTOTRACHEATA.

By R. INNES POCK.

Myriopoda—		Systematic—	
Titles of Papers . . . . .	1	Chilopoda . . . . .	3
Anatomy, Physiology, Phy- logeny, &c. . . . .	3	Diplopoda . . . . .	4
Distribution . . . . .	3	Prototracheata . . . . .	6

# XIII. INSECTA. By D. SHARP.

	Page		Page
Introduction . . . . .	1	Economic . . . . .	83
Titles . . . . .	2	Bibliography, Nomenclature,	
Anatomy, Physiology, Biology	63	Biography . . . . .	86
Faunistic and Palæontology . .	70	Systematic . . . . .	88

## (a.) COLEOPTERA.

	Page		Page		Page
Cicindelidæ . . . . .	88	Lathridiidæ, My-		Melandryidæ,	
Carabidæ . . . . .	90	cetophagidæ . .	110	Lagriidæ . . . . .	141
Amphizoidæ, Hali-		Dermestidæ,		Pedilidæ, Xylophi-	
plidæ, Dytis-		Byrrhidæ . . . .	110	lidæ . . . . .	141
cidæ . . . . .	98	Parnidæ, Hetero-		Anthicidæ . . . . .	141
Gyrinidæ . . . . .	99	ceridæ . . . . .	110	Mordellidæ, Rhi-	
Hydrophilidæ . . . .	100	Lucanidæ, Passa-		pidophoridæ,	
Staphylinidæ . . . .	101	lidæ . . . . .	111	Stylopidæ . . . . .	142
Pselaphidæ . . . . .	103	Scarabæidæ . . . .	111	Cantharidæ . . . . .	142
Scydmenidæ . . . . .	103	Buprestidæ . . . .	122	Ædemeridæ . . . . .	145
Paussidæ . . . . .	103	Throscidæ, Monom-		Curculionidæ . . . .	145
Silphidæ . . . . .	104	midæ, Eucnemidæ	126	Cerambycidæ . . . . .	159
Trichopterygidæ . .	104	Elateridæ . . . . .	126	Scolytidæ . . . . .	168
Histeridæ . . . . .	104	Dascillidæ . . . . .	129	Brenthidæ . . . . .	169
Phalacridæ . . . . .	106	Malacodermata . .	129	Anthribidæ . . . . .	170
Nitidulidæ . . . . .	107	Cleridæ . . . . .	131	Bruchidæ . . . . .	170
Trogositidæ . . . . .	108	Bostrichidæ,		Chrysomelidæ . . . .	170
Colydiidæ . . . . .	108	Ptinidæ, Cioidæ	133	Erotylidæ . . . . .	182
Cucujidæ, Rhyss-		Tenebrionidæ . .	133	Endomychidæ . . . .	182
didæ . . . . .	109	Cistelidæ . . . . .	140	Coccinellidæ . . . . .	183
Cryptophagidæ . .	109			Corylophidæ . . . . .	185

## (b.) HYMENOPTERA.

Aculeata		Terebrantia		Terebrantia	
Apidæ . . . . .	186	Ichneumonidæ . .	202	Chalcididæ . . . . .	206
Vespidæ . . . . .	188	Braconidæ . . . .	205	Proctotrupidæ . . . .	207
Fossoria . . . . .	189	Evaniidæ, Ste-		Cynipidæ . . . . .	207
Formicidæ . . . . .	196	phaniidæ, Mo-		Sessiliventres	
Terebrantia		nomachidæ,		Siricidæ . . . . .	208
Chrysididæ . . . .	201	Trigonalidæ . . .	206	Tenthredinidæ . . . .	208

## (c.) LEPIDOPTERA.

General . . . . .	211	Rhopalocera		Rhopalocera	
Rhopalocera		Nymphalidæ . . .	215	Hesperiidæ . . . . .	224
Papilionidæ . . . .	211	Morphidæ . . . .	218	Heterocera	
Pieridæ . . . . .	213	Satyridæ . . . . .	219	General . . . . .	226
Danaidæ . . . . .	214	Elymniidæ, Ery-		Sphingidæ . . . . .	226
Acæidæ, Heli-		cinidæ . . . . .	221	Ægeridæ . . . . .	227
coniidæ . . . . .	215	Lycænidæ . . . . .	221	Castniidæ . . . . .	229

LEPIDOPTERA—*continued*.

	Page		Page		Page
Heterocera		Heterocera		Heterocera	
Bombyces . . .	229	Pyralidæ, Cram-		Tortricidæ . . .	279
Cymatophoridæ	250	bidæ, Phy-		Tineidæ . . . .	280
Noctuidæ . . .	250	citidæ, Sicu-		Agdistidæ,	
Deltoididæ . . .	260	lodidæ . . . .	273	Pterophoridæ	282
Geometridæ . .	261				

## (d.) DIPTERA.

General . . . . .	283	Xylophagidæ,		Æstridæ . . . . .	292
Cecidomyiidæ . .	283	Stratiomyiidæ .	285	Conopidæ, Pipun-	
Mycetophilidæ,		Tabanidæ . . . .	286	culidæ, Platy-	
Simuliidæ, Bib-		Nemestrinidæ,		pezidæ . . . . .	293
ionidæ, Blepha-		Bombyliidæ . .	287	Muscidæ calyp-	
roceridæ . . . .	284	Asilidæ . . . . .	289	tratæ . . . . .	293
Culicidæ, Chiro-		Leptidæ, Therev-		Muscidæ acalyp-	
nomidæ . . . . .	285	idæ, Empidæ . .	289	tratæ . . . . .	301
Tipulidæ . . . .	285	Dolichopodidæ .	290	Phoridæ . . . . .	302
		Syrphidæ . . . .	290	Pupipara . . . . .	302

## (e.) RHYNCHOTA.

Heteroptera . . .	303	Heteroptera		Homoptera	
General . . . . .	303	Reduviidæ . . .	309	Cercopidæ . . .	315
Pentatomidæ . .	303	Saldidæ, Cimic-		Membracidæ . .	315
Coreidæ . . . . .	305	idæ . . . . .	310	Jassidæ . . . . .	315
Lygæidæ, Pyrr-		Capsidæ . . . .	311	Psyllidæ . . . .	316
hocoridæ . . . .	307	Hydrocorisæ . .	312	Aphididæ . . .	316
Tingitidæ . . .	308	Homoptera . . .	312	Coccidæ, Aleu-	
Aradidæ . . . .	308	Cicadidæ . . . .	312	rodidæ . . . . .	317
Hydrometridæ .	309	Fulgoridæ . . .	314		

## (f.) NEUROPTERA.

Trichoptera . . .	320	Mallophaga, Ter-		Ephemeridæ . . .	321
Planipennia . . .	320	mitidæ, Psocidæ	321	Odonata . . . . .	322
Thysanura(Aptera)	320	Perlidæ . . . . .	321		

## (g.) ORTHOPTERA.

Forficulidæ . . .	325	Mantidæ . . . . .	326	Locustidæ . . . .	327
Blattidæ . . . . .	325	Phasmatidæ . . .	327	Acridiidæ . . . .	331
		Gryllidæ . . . . .	327		

## XIV. ECHINODERMATA. By F. A. BATHER.

	Page		Page
Titles . . . . .	1	Echinoidea . . . . .	10
Biology . . . . .	5	Asteroidea . . . . .	16
Distribution—		Ophiuroidea . . . . .	17
Geographical . . . . .	7	Crinoidea . . . . .	18
Geological . . . . .	8	Cystidea . . . . .	21
Systematic . . . . .	9	Blastoidea . . . . .	22
Holothurioidea . . . . .	9		

## XV. VERMES. By FLORENCE BUCHANAN, B.Sc.

Titles . . . . .	1	Systematic—	
Hemichordata—		Trematoda . . . . .	66
Biological . . . . .	30	Nemertinea . . . . .	69
Faunistic . . . . .	31	Turbellaria . . . . .	70
Systematic . . . . .	31	Nematoda, Acanthocephala and	
Annelida—		Chaetognatha—	
Biological . . . . .	31	Biological . . . . .	73
Faunistic . . . . .	39	Faunistic . . . . .	79
Systematic . . . . .	43	Systematic . . . . .	80
Gephyrea . . . . .	43	Nematoda . . . . .	80
Chaetopoda . . . . .	44	Acanthocephala . . . . .	81
Hirudinea . . . . .	51	Chaetognatha . . . . .	82
Platyhelminthes—		Rotifera—	
Biological . . . . .	53	Biological . . . . .	82
Faunistic . . . . .	61	Faunistic . . . . .	84
Systematic . . . . .	63	Systematic . . . . .	85
Cestoda . . . . .	63	Mesozoa . . . . .	88

## XVI. CŒLENTERATA. By S. J. HICKSON, M.A., D.Sc.

List of Papers . . . . .	1	Systematic—	
Morphology . . . . .	4	Hydrozoa . . . . .	10
Faunistic . . . . .	9	Scyphozoa . . . . .	11
		Anthozoa . . . . .	11

## XVII. SPONGIÆ. By R. HANITSCH, Ph.D.

List of Publications . . . . .	1	Systematic—	
Anatomy, Embryology, Physi-		Calcarea . . . . .	15
ology, Biology . . . . .	7	Hexactinellida . . . . .	17
Distribution—		Tetractinellida . . . . .	17
Faunistic . . . . .	14	Monaxonida . . . . .	18
Geological . . . . .	15	Keratosa . . . . .	24
		Incertæ sedis . . . . .	24

## XVIII. PROTOZOA. By R. HANITSCH, Ph.D.

List of Publications . . . . .	1	Systematic—	
Anatomy, Biology . . . . .	14	Gymnomyxa . . . . .	18
Distribution—		Corticata . . . . .	28
Faunistic . . . . .	16	Incertæ sedis . . . . .	32
Geological . . . . .	17		

# THE ZOOLOGICAL RECORD

## FOR 1892.

---

### I. GENERAL SUBJECTS.

BY

J. ARTHUR THOMSON, M.A.

---

#### PLAN OF RECORD.

##### I.—TITLES.

##### II.—SUBJECT-INDEX.

- A. Text-Books, Essays, and General.
- B. Cell and Protoplasm.
- C. Oogenesis, Spermatogenesis, Fertilisation.
- D. Sex, Reproduction, and Heredity.
- E. Evolution.

#### TITLES.\*

1. \*AAS, E. Sjaeleliv og Intelligens hos Dyr. Del I. Pattedyr og Fugle. Christiania : 8vo, pp. 1-192, illustr.
2. AGASSIZ, A. General sketch of the Expedition of the "Albatross" from February to May, 1891. Report on the Dredging operations off the West Coast of Central America to the Galapagos, to the West Coast of Mexico, and in the Gulf of California. Bull. Mus. C. Z. xxiii (1892), pp. 1-89, 22 pls.
3. ALCOCK, A. A case of Commensalism between a Gymnoblasic Anthomedusoid (*Stylactis minoi*, n. sp.) and a Scorpenoid Fish (*Minous inermis*). Ann. N. H. x, pp. 207-214, 1 pl.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

4. [ALCOCK, A.] On the Habits of *Gelasimus annulipes*, Edw. Ann. N. H. 1892, pp. 415 & 416.  
Re Sexual Selection.
5. ALLEN, J. A. Definite *versus* Fortuitous Variation. (Discussion Amer. Soc. Nat.) Am. Nat. xxvi, pp. 85-91.
6. ALTMANN, A. Ein Beitrag zur Granulalehre. Verh. Anat. Ges. 1892, pp. 220-223.
7. \* —. Ueber Kernstructur und Netzstructuren. Inhalt eines Vortrages, gehalten auf der Wiener Anatomen Versammlung 1892. Arch. Anat. Entw. 1892, pp. 223-230.
8. \*AMMON, O. La selection naturelle chez l'homme. L'Anthropologie, 1892, ii, pp. 720-736.
9. ANDREWS, E. A. Experimental Embryology. Am. Nat. xxvi, pp. 367-382 & 580-592.
10. —. Heliotropic Animals. T. c. pp. 400-407.
11. —. Bifurcated Annelids. T. c. pp. 725-731.
12. ANON. Chronophotography, or Photography as applied to Moving Objects. Nature, xlv, pp. 228-232, 11 figs.
13. —. Discussion über Verbreitung pelagischer Thierformen. Verh. deutsch. Zool. Ges. 1892, pp. 119-121.
14. APÁTHY, S. Contractile und leitende Primitivfibrillen. MT. z. Stat. Neap. x, pp. 355-375, 1 pl.  
General Histology.
15. —. Kritische Bemerkungen über das Frenzel'sche Mesozoon *Salinella*. Eine biologische Skizze. Biol. Centralbl. xii, pp. 108-123.
16. —. Critical Observations on Frenzel's Mesozoon *Salinella*: a Biological Sketch. Ann. N. H. ix, pp. 465-481.  
Translation of above.
17. APLIN, O. V. Albinism in Birds and Mammals. Zool. xvi, p. 191.
18. APSTEIN, C. Quantitative Plankton-Studien im Süßwasser. Biol. Centralbl. xii, pp. 484-512 & 608.
19. —. Das Plankton des Süßwassers und seine quantitative Bestimmung. Schr. Nat. Ver. Schleswig, ix, pp. 267-273.
20. ARDISSONE, F. L'Organismo vivente considerato nella sua essenza et nella sua origine. Varese: 8vo, 24 pp.
21. \*ARNDT, R. Biologische Studien. I. Das biologische Grundgesetz. Greifswald: 8vo, ix & 203 pp.
22. \*ARNOLD, A. F. Beiträge zur Kenntnis des Reptilien-Ovariums. Inaug. Diss. Erlangen, 8vo, 39 pp.

23. ASSHETON, R. On the Development of the Optic Nerve of Vertebrates, and the Choroidal Fissure of Embryonic Life. *Q. J. Micr. Sci.* xxxiv, pp. 85-104, 2 pls.  
 —. [See also BEARD (37).]
24. AURIVILLIUS, C. W. J. Analyse d'un mémoire intitulé du déguisement des Décapodes oxyrhyniques à l'aide d'adaptations singulières du corps. *Ann. Sci. Nat.* xiii, pp. 343-348.
25. AYERS, H. Vertebrate Cephalogenesis. II. A Contribution to the Morphology of the Vertebrate Ear, with a Reconsideration of its Functions. *J. Morph.* vi, pp. 1-360, 12 pls.
26. \*BALBIANI E. G. Nouvelles recherches expérimentales sur la mérotomie des Infusoires ciliés. *Ann. Micrograph.* 1892, 79 pp., 3 pls.
27. BALLOWITZ, E. Die Bedeutung der Valentin'schen Querbänder am Spermatozoenkopfe der Säugethiere. *Arch. Anat. Phys.* 1891, pp. 193-211, 1 pl.
28. BANKS, N. Mimicry in Spiders. *P. E. Soc. Wash.* ii, pp. 174-176.
29. VON BARDELEBEN, K. Ueber Spermatogenese bei Säugetieren, besonders beim Menschen. *Verh. Anat. Ges.* 1892, pp. 202-208.
30. BATAILLON, E. Sur le déterminisme physiologique de la métamorphose chez le ver à soie. *C.R.* cxv, pp. 61-64.
31. \*——. Recherches anatomiques et expérimentales sur la métamorphose des Amphibiens anoures. Paris : 127 pp., 6 pls.
32. BATES, H. W. The Naturalist on the River Amazon. With a Memoir of the author, by Edward Clodd. Reprint of the unabridged edition, with map and numerous illustrations. London : 8vo, 478 pp.
33. BATESON, W. On Numerical Variation in Teeth, with a discussion of the Conception of Homology. *P. Z. S.* 1892, pp. 102-115, 6 figg.
34. —. [Letter to Nature.] The Alleged Aggressive Mimicry of *Volucellæ*. *Nature*, xlvii, p. 585.  
*Cf.* POULTON, *op. cit.* xlvii, p. 28 ; BATESON, *t. c.* p. 77 ; POULTON, *t. c.* p. 126.  
 BATHER, F. A. [See BUCKMAN & BATHER (79).]
35. BEALE, L. S. Protoplasm, Physical Life, and Law ; or, Nature as viewed from without. London : 4th Edition, 8vo, 286 pp.
36. BEARD, J. The Histogenesis of Nerve. *Anat. Anz.* vii, pp. 290-302.
37. —. [Letter to Nature.] On a supposed Law of Metazoan Development. *Nature*, xlvii, p. 79, and *Anat. Anz.* viii, pp. 22.  
*Cf.* ASSHETON, R., *t. c.* p. 176.
38. —. Larvæ and their Relations to Adult Forms. *Rep. Brit. Ass.* 1892, p. 757.

39. [BEARD, J.] The Transient Ganglion Cells and their Nerves in *Raja batis*. *Anat. Anz.* vii, pp. 191–206, 8 figg.
40. —. Notes on Lampreys and Hags (*Myxine*). *Anat. Anz.* viii, pp. 59 & 60.  
*Re Hermaphroditism.*
41. BEDDARD, F. E. Animal Colouration : an account of the principal facts and theories relating to the Colours and Markings of Animals. London : 8vo, 258 pp., 4 col. pls., illustrs.
42. —. Some Recent Observations upon Mimicry. *Nat. Sci.* pp. 10–16.
43. BEECHER, C. E. Development of the *Brachiopoda*. Part. II. Classification of the Stages of Growth and Decline. *Am. J. Sci.* xlv, pp. 133–155, 1 pl., figg.
44. BEHRENS, W. Tabellen zum Gebrauch bei mikroskopischen Arbeiten. 2nd Ed. Braunschweig : 8vo, vii & 205 pp.
45. BENDA, C. Ueber die Histiogenese des Sauropsidenspermatozoons. *Verh. Anat. Ges.* vi, 1892, pp. 195–199.
46. \* —. Eine Mitteilung zur Samenbildung. *Int. Centralbl. Phys. Path. Harn Sexual-organe*, iv, pp. 23–25.
47. BÉRANECK, E. Sur le nerf pariétal et la morphologie du troisième œil des Vertébrés. *Anat. Anz.* vii, pp. 674–689, 6 figg.
48. BERGH, R. S. Kritik einer moderner Hypothese von der Uebertragung erblicher Eigenschaften. *Zool. Anz.* xv, pp. 43–52.
49. —. A Criticism of a Modern Hypothesis of the Transmission of Hereditary Characters. *Ann. N. H.* x, pp. 467–475.  
BERNARD, H. M. & M. [See LANG (318).]
50. BERTACCHINI, P. La Spermatogénèse chez la *Rana temporaria*. *Arch. Ital. Biol.* xvii, pp. 166 & 167.  
BEZANÇON, P. [See VARIOT & BEZANÇON (500–502).]
51. BIEDERMANN, W. Ueber den Farbenwechsel der Frösche. *Arch. Ges. Phys.* li, pp. 455–508, 1 pl.  
*Re Colouration.*
52. \*BIEGELEBEN, A. VON. Betrachtungen über das Verhältniss der menschlichen Seele zur Thierseele. Frankfurt : 8vo, 27 pp.
53. BIGNELL, G. C. *Myrmica ruginodes* making War on its own Species. *Ent. M. M.* xxviii, p. 135.
54. BLANC, H. Note préliminaire sur la maturation et la fécondation de l'œuf de la Truite. *Bull. Soc. Vaud.* xxvii, pp. 272–275.
55. —. Sur la maturation et la fécondation de l'œuf de la Truite des lacs. *C.R. Soc. helv. Sci. Nat.* lxxiv, pp. 55 & 56.

56. BLANC, L. Un cas d'ovule à deux noyaux chez un Mammifère (*Mus decumanus*). C.R. Soc. Biol. iv, pp. 563 & 564.
57. —. Note sur l'influence de la lumière sur l'orientation de l'embryon dans l'œuf de Poule. T. c. pp. 774-776.
58. BLANCHARD, R. Deuxième Rapport sur la nomenclature des êtres organisés. Congrès Internat. Zool. ii, pt. 1, pp. 303-314. Cf. Bull. Soc. Z. Fr. xvii, pp. 196-200.
59. —. Règles de nomenclature adoptées par le Congrès Zoologique de Moscou. Zool. Anz. xv, pp. 440-442.
- 59A. BLES, E. J. Notes on the Plankton observed at Plymouth during June, July, August, and September, 1892. J. Mar. Biol. Ass. ii, pp. 340-343.
60. BODINGTON, A. Mental Evolution in Man and the Lower Animals (continued). Am. Nat. xxvi, pp. 482-494 & 593-606.  
BÆTTGER, O. [See BREHM (73).]
61. \*BÖHM, A. A. Die Befruchtung des Forelleneies. SB. Ges. Morph. vii, pp. 65-73, figg.
62. \*BOMMELI, R. Die Thierwelt. Eine illustrierte Naturgeschichte der jetzt lebenden Thiere. Stuttgart: 8vo, Heft 1, 64 pp.
63. \*BONNIER, G. Anatomie et Physiologie Animales. I. Étude spécial de l'homme. II. Les Organes et leurs fonctions dans la série animale. Paris: 18mo, 310 pp.
64. BORDAGE, E. Les Vertébrés descendent-ils des Arthropodes. Rev. Sci. xlix, pp. 333-339, 9 figg.
65. BORN, G. Die Reifung des Amphibieneies und die Befruchtung unreifer Eier bei *Triton teniatus*. Anat. Anz. vii, pp. 772-781 & 803-811, 1 fig.
66. BORREL, A. De la division du noyau et de la division cellulaire dans les tumeurs épithéliales. J. de l'Anat. Phys. xxviii, pp. 129-142, 2 pls.
67. BOULENGER, G. A. Fecundation in the Tailed Batrachians: a summary Review of Recent Discoveries. Zool. Jahrb. vi, pp. 447-452.
68. \*BOVERI, TH. Ueber die Entstehung des Gegensatzes zwischen den Geschlechtszellen und den somatischen Zellen bei *Ascaris megalocephala*. SB. Ges. Morph. viii, pp. 114-125, 5 figg.
69. \*BRANDES, G. Ueber Mimicry und andere Anpassungserscheinungen im Thierreiche. CB. Ver. Sachs. Thür. 1891, pp. 168-171.
70. BRANDT, A. Essai d'une classification des variations animales selon leurs causes. Congrès Internat. Zool. ii, pt. 1, pp. 66 & 67.
71. BRANDT, K. Ueber Anpassungserscheinungen und Art der Verbreitung von Hochseethieren, in Krümmel's Reisebeschreibung d. Plankton Exp. pp. 338-370, 1 map.

72. BRAUER, A. Ueber das Ei von *Branchipus Grubii* v. Dyb. Von der Bildung bis zur Ablage. Abh. Ak. Berl. 1892, 66 pp., 3 pls.
73. BREHM, A. E. Thierleben. Allgemeine Kunde des Thierreichs. 3. gänzlich neubearbeitete Aufl. Hrsg. von Prof. Dr. Pechuel-Loesche. Bd. VI. (*Birds*, 3rd vol.), 740 pp., 20 pls., 106 figg., 3 maps (Pechuel-Loesche & W. Haacke). Bd. VII. (*Reptilia and Amphibia*), 825 pp., 16 pls., 167 figg., 1 map (Pechuel-Loesche & O. Boettger). Bd. VIII. (*Fishes*), 517 pp., 11 pls., 146 figg., 1 map (Pechuel-Loesche & W. Haacke). Bd. IX. (*Insects*), 764 pp., 21 pls., 287 figg., 1 map (E. L. Taschenberg).
74. \*——. Thierleben. Kleine Ausgabe für Volk und Schule. 2. Auf. gänzl. neu bearb. von R. Schmittlein. 1 Bd. Die Säugethiere. Leipzig : 8vo, xvi & 747 pp., 1 pl., 226 figg.
75. BRONN, —. Klassen und Ordnungen des Thierreichs.  
The following divisions have made progress in 1892, viz. :—*Celenterata*, by C. CHUN ; *Echinoderms*, by H. LUDWIG ; *Mollusca*, by H. SIMROTH, *Vermes*, by M. BRAUN ; *Crustacea*, by A. GERSTAECKER ; *Mammalia*, by W. LECHE.  
See other Records.
76. BROOKS, W. K., & HERRICK, F. H. The Embryology and Metamorphosis of the *Macroura*. Johns Hopk. Univ. Circ. xi, pp. 67 & 68. *Re Pœcilogony*.
77. BROWN-SÉQUARD. Effets produits sur de nombreux états morbides par des injections sous-cutanées d'un extrait liquide retiré des testicules. C.R. cxiv, pp. 1318-1321. Cf. t. c. pp. 1399-1405 (Brown-Séquad & d'Arsonval), p. 1446 (Grigorescu).
78. —. Effets physiologiques d'un liquide extrait des glandes sexuelles, et surtout des testicules. T. c. pp. 1237-1242.
- 78A. —. Hérité d'une affection due à une cause accidentelle. Faits et arguments contre les explications et les critiques de Weismann. Arch. Phys. xxiv, pp. 686-688.
79. BUCKMAN, S. S., & BATHER, F. A. The Terms of Auxology. Zool. Anz. xv, pp. 420, 421, & 429-434.
80. BUCHNER, O. Die Asymmetrie der Gastropoden in ihren Beziehungen und Wirkungen auf die Lebensäusserungen der Schalentragenden Schnecken. JH. Ver. Württ. xlviii, pp. 58-92.
81. \*BÜCHNER, E. Ueber Vergangenheit und Zukunft des Menschen-geschlechtes im Sinne der Entwicklungstheorie. Festschr. Ver. Rheinpfalz. 1892, pp. 48-65.
82. BÜRGER, O. Was sind die Attraktionsphären und ihre Centralkörper. Anat. Anz. vii, pp. 222-231.

83. BÜTSCHLI, O. Untersuchungen über mikroskopische Schäume und das Protoplasma. Versuche und Beobachtungen zur Lösung der Frage nach den physikalischen Bedingungen der Lebenserscheinungen. Leipzig : 4to, iv & 232 pp., 6 pls., 23 figg., and atlas of 19 microphotographs.
84. —. Ueber die sogenannten Centrankörper der Zelle und ihre Bedeutung. Verh. Ver. Heidelb. iv, pp. 535-538.
85. \*BURCKHARDT, R. Das Centralnervensystem von *Protopterus annectens*. Eine vergleichend-anatomische Studie. Berlin : 8vo, 64 pp., 5 pls.  
 Chapters on Phyletic History of the Brain, Metamerism, &c.
86. \*BUSCALIONI, L. Sulla frammentazione nucleare seguita dalla divisione della cellula. Giorn. Acc. Med. Torino, v, pp. 326-328.
87. \*—. Contribuzione allo studio della membrana cellulare. Malphighia, 1892, 90 pp., 2 pls.
88. CALDERWOOD, W. L. A Contribution to the Knowledge of the Ovary and Intra-ovarian Egg in Teleosteans. J. Mar. Biol. Ass. ii, pp. 298-313, 2 pls.
89. CAMPBELL, H. J. Text-book of Elementary Biology. London : 8vo, 286 pp., 136 figg.  
 CANESTRINI. [See MORSELLI (366).]
90. \*CARLET, G. Précis de zoologie médicale. 3 édit. entièrement refondue. Paris : 8vo, 722 pp., 636 figg.
91. CARLILE, W. W. Animal Intelligence. Tr. N. Z. Inst. xxiv, pp. 349-354.
92. CATTANEO, G. Influenza del letargo sulle forme e i fenomeni delle cellule ameboidi negli Invertebrati. Atti Soc. Ligust. iii, pp. 248-251.  
 —. [See also MORSELLI (366).]
93. CHATIN, J. La Cellule animale ; sa structure et sa vie : étude biologique et pratique. Paris : 8vo, 304 pp., 149 figg.
94. —. Sur la membrane basilaire. C.R. Soc. Biol. iv, pp. 463 & 464.
95. CHOLODKOVSKY, N. Contribution à la theorie du mésoderme et de la métamérie. Congr. Internat. Zool. ii, pt. 1, pp. 58-65. Cf. Rev. Sci. Nat. St. Pétersb. iii, pp. 204-209.
96. CHUN, C. Die Dissogonie, eine neue Form der geschlechtlichen Zeugung. Feschr. R. Leuckart, pp. 77-108, 5 pls., 3 figg. Leipzig : 4to.
97. CLARKE, C. B. On Biologic Regions and Tabulation Areas. Phil. Trans. clxxxiii, pp. 371-387, 2 maps ; P. R. Soc. I, pp. 472-474.  
 1892. [VOL. XXIX.]

98. CLARK, J. Natural Relations between Temperature and Protoplasmic Movement. Rep. Brit. Ass. 1892, p. 760.
99. —. Experimental Observations on the Function of the Nucleus in the Vegetable Cell. *T. c.* p. 761.
100. COMSTOCK, J. H. The Descent of the *Lepidoptera*. An application of the Theory of Natural Selection to Taxonomy. (Abstract) P. Am. Ass. xli, pp. 199–201.
101. COPE, E. D. Definite *versus* Fortuitous Variation. (Discussion Amer. Soc. Nat.) Am. Nat. xxvi, pp. 85–91.
102. —. On some points in the Kinetogenesis of the Limbs of Vertebrates. P. Am. Phil. Soc. xxx, pp. 282–285.
103. CORI, C. J. Ueber Anomalie der Segmentirung bei Anneliden und deren Bedeutung für die Theorie der Metamerie. Z. wiss. Zool. liv, pp. 569–578, 1 pl.
104. CORNEVIN, C. Études zootechniques sur la croissance. Arch. Phys. xxiv, pp. 477–487, cf. J. méd. vét. et zootechn. iii, pp. 449–460.
105. COSTE, F. H. PERRY. On Insect Colours. Nature, xlv, pp. 513–517, 541, 542 & 605.
106. —. Evolution of Insect Colours. Ent. xxv, pp. 28 & 29.  
— [See also HOPKINS (266).]
107. COULON, RAIMOND. Synthèse de transformisme. Description élémentaire de l'évolution universelle. Paris: 8vo, xiv & 215 pp.
108. CRATO, E. Beitrag zur Kenntniss der Protoplasmastructur. Ber. Deutsche Botan. Ges. x, pp. 451–458.
109. CRETY, C. Le noyau vitellin dans les œufs des Trématodes. Arch. Ital. Biol. xvii, pp. 396–399.
110. —. Intorno al nucleo vitellino dei Trematodi. Atti [Rend.] Acc. Rom. 1892, pp. 92–97.
111. CREUTZBURG, N. Ueber metaphysische Probleme in der Zoologie. Eine Kritik der Darwin'schen Theorie. Abh. Ges. Halle, xvii, pp. 461–472.  
CROTCH, W. DUPPA. [See ROMANES (435).]
112. CUÉNOT, L. Les organes phagocytaires chez quelques invertébrés. Arch. Z. expér. x, pp. ix–xi.
113. —. Notes sur les Echinodermes. I. Ovogénèse et Spermatogénèse. Zool. Anz. xv, pp. 121–125, figg.
114. —. La valeur respiratoire de l'hémocyanine. C.R. cxv, pp. 127–129.
115. CUNNINGHAM, J. T. The Evolution of Flat-Fishes. Nat. Sci. i, pp. 191–199.

CURTEL, G. [See LANG, A. (318).]

116. DANILEWSKY, B. Ueber die physiologische Wirkung des Cocaïns auf wirbellose Thiere. Arch. ges. Phys. li, pp. 446-454.
117. DANNEHL, P. Ueber die kadaverösen Veränderungen der Altmann'schen Granula. Arch. pathol. Anat. cxxviii, pp. 485-496.  
Re Structure of Protoplasm.
118. DARESTE, C. Note sur l'évolution de l'embryon de la poule soumis pendant l'incubation à un mouvement de rotation continue. C.R. cxv, pp. 137 & 138.
119. —. La tératogénie expérimentale. Rev. Sci. xlix, pp. 33-42, 19 figg.
120. DARWIN, CHARLES. Voyage of H.M.S. "Beagle" round the World. London: 8vo, 202 pp., illustr. Sixpenny Edition.
121. DARWIN, F. Charles Darwin: His Life told in an Autobiographical chapter, and in a selected series of his published letters. London: 8vo, 346 pp., with portrait.
122. DEHNER, H. Ueber die sogenannte parthenogenetische Furchung des Froscheies. Verh. Ges. Würzb. xxvi. Inaug. Diss. Würzburg: 8vo, 18 pp., 1 pl.
123. DETMER, W. Ueber die Natur und Bedeutung der physiologischen Elemente des Protoplasmas. Ber. Deutsche Botan. Ges. x, pp. 433-442.
124. DINEUR, E. Note sur la sensibilité des leucocytes à l'électricité. Bull. Soc. Belg. Micr. xviii, pp. 113-118.
125. DISTANT, W. L. A Naturalist in the Transvaal. London: 8vo, 16 & 277 pp., 5 pls., 29 figg.
126. DIXON, C. The Migration of Birds: an attempt to reduce Avian Season Flight to Law. London: 8vo, 306 pp.  
Instinct and Evolution.
127. DIXON, E. T. [Letter to Nature.] The Limits of Animal Intelligence. Nature, xlvi, p. 392.  
Cf. C. LLOYD MORGAN, *t. c.* p. 417, and ST. GEORGE MIVART, *t. c.* p. 466.
128. DREYER, F. Die Principien der Gerüstbildung bei Rhizopoden, Spongien, und Echinodermen. Ein Versuch zur mechanischen Erklärung organischer Gebilde. Jen. Z. Nat. xxvi, pp. 204-468, 14 pls.
129. —. Ziele und Wege biologischer Forschung beleuchtet an der Hand einer Gerüstbildungsmechanik. Jena: 8vo, xii & 103 pp., 6 pls.

130. DRIESCH, H. Entwicklungsmechanische Studien :  
 III. Die Verminderung des Furchungsmaterials und ihre Folgen (Weiteres über Theilbildungen).  
 IV. Experimentelle Veränderungen des Typus der Furchung und ihre Folgen (Wirkungen von Wärmezufuhr und von Druck).  
 V. Von der Furchung doppelt befruchteter Eier.  
 VI. Ueber einige allgemeine Frage der theoretischen Morphologie. *Z. wiss. Zool.* iv, pp. 1-62, 3 pls.
131. —. Entwicklungsmechanisches. *Anat. Anz.* vii, pp. 584-586. *Am. Nat.* xxvi, pp. 1042 & 1043.
132. —. Kritische Erörterungen neuerer Beiträge zur theoretischen Morphologie. *Biol. Centralbl.* xii, pp. 528-540, 545-556.
133. —. Epigenesis or Evolution? (Abstract) *Am. Nat.* xxvi, pp. 178-180.
134. DUBOIS, R. Anatomie et Physiologie comparée de la Pholade dactyle (structure, locomotion, tact, olfaction, gustation, vision, dermatoptique, photogénie) avec une théorie générale des sensations. Paris: 8vo, x & 167 pp., 68 figg., 15 pls.
135. DUCLAUX, —. Sur une réaction donnée comme particulière à la spermine. *C.R.* cxv, pp. 549 & 550.
136. \*DUTOIT-HALLER, —. Schöpfung und Entwicklung nach Bibel und Naturwissenschaft. Basel: 8vo, 44 pp.
137. \*EBERTH, S. Referat über den Befruchtungsprocess bei Wirbellosen (Echinodermen) und Wirbeltieren (Selachier, Reptilien). *Münch. med. Wochschr.* xxxix, p. 371.
138. \* —. Schlummerzellen und Gewebsbildung. *T. c.* pp. 755-758.
139. \* —. Schlummerzellen und Gewebsbildung. *Fortschr. Med.* x, pp. 990-1000.
140. EBNER, V. VON. Ueber die Beziehungen der Wirbel zu den Urwirbel. *SB. Ak. Wien*, ci, pp. 235-260, 1 pl.
141. EDINGER, L. Untersuchungen über die vergleichende Anatomie des Gehirns.  
 I. Das Vorderhirn (Neuabdruck, 1892). Frankfurt a-M.: 4to, 28 pp., 4 pls.  
 II. Das Zwischenhirn. Erster Theil. Das Zwischenhirn der Selachier und der Amphibien. Frankfurt a-M.: 4to, 95 pp., 5 pls.; both reprints from *Abh. Senck. Ges.*
142. —. Zwölf Vorlesungen über den Bau der nervösen Centralorgane. 3 Aufl. Leipzig: 8vo, viii & 196 pp., 139 figg.
143. \*EHRMANN, S. Zur Kenntnis von der Entwicklung und Wanderung des Pigmentes bei den Amphibien. *Arch. Dermatol.* xxiv, pp. 195-222, 1 pl.

144. [\*EHRMANN, S.] Beitrag zur Physiologie der Pigmentzellen nach Versuchen am Farbenwechsel der Amphibien. Arch. Dermatol. xxiv, pp. 519-539, 1 pl.  
Re Colouration.
145. EIMER, G. H. TH. Die Entstehung und Ausbildung des Muskelgewebes, insbesondere der Querstreifung derselben als Wirkung der Thätigkeit betrachtet. Z. wiss. Zool. liii, Suppl. pp. 67-111, 13 figg.
146. —. Ueber die Entstehung der Arten. Vortrag. JH. Ver Württ. xlviii, pp. lxxxii & lxxxiii.
147. \*EISMOND, J. Beitrag zur Frage über die Theilung des Zell-leibes. Arb. z. Lab. Warschau (1892), 20 pp.
148. ELLENBERGER, W. Handbuch der Vergleichende Histologie und Physiologie der Haussäugethiere, Band II. Vergleichende Physiologie der Haussäugetiere, Teil II. Berlin: 8vo, viii & 994 pp., 284 figg., 4 pls.
149. \*ELLIOT, D. G. The Inheritance of Acquired Characters. President's Address Amer. Ornithol. Union, 1891. Auk, ix, pp. 77-104.
150. \*——. Hybridism, and a Description of a Hybrid between *Anas boschas* and *Anas americana*. Auk, ix, pp. 160-166.
151. EMERY, C. Zur Morphologie der cyklopischen Missbildungen. Eine Hypothese betreffend den Schlundring der Wirbeltiere. Anat. Anz. viii, pp. 52-57.
152. ENDRES, —. Anatomisch-entwicklungsgeschichtliche Studien über die formbildende Bedeutung des Blutgefäss-Apparates unter besonderer Berücksichtigung der damit verbundenen mechanischen Einflüsse. Arch. mikr. Anat. xl, pp. 435-483, 3 pls.
153. \*ENGEL, R. Nouveaux éléments de chimie médicale et de chimie biologique. 4th Ed. Paris: 8vo, 2nd part, pp. 324-694, figg. 37-108.
154. \*ENGELMANN, T. W. [& OTHERS]. Festschrift. Beiträge zur Psychologie und Physiologie der Sinnesorgane. Hermann von Helmholtz als Festgruss zu seinem 70 Geburtstage dargebracht von Th. W. Engelmann, E. Javal, A. König, J. v. Kries, Th. Lipps, L. Matthiesen, W. Preyer, W. Uhthoff. Gesamm. u. hrsrg. von A. König. Hamburg: 8vo, vii & 388 pp., 6 pls.
155. ESCHERICH, C. Die biologische Bedeutung der "Genitalanhänge" der Insecten (Ein Beitrag zur Bastardfrage). Verh. z.-b. Wien, xlii, pp. 225-240, 1 pl.
156. ESCHERICH, K. Ueber die Gesetzmässigkeit im Abändern der Zeichnung bei Insekten. Beitrag zur Theorie von der Entwicklung aus constitutionellen Ursachen. Deutsche e. Z. 1892, pp. 113-130, 1 pl.

- 156A. EWALD, C. A. The Influence of Light on the Gas Exchange in Animal Tissues. *J. Physiol.* xiii, pp. 847-859.
157. FABANI, C. Nota ad alcuni casi di anomalie nel colore degli uccelli. *Riv. Ital. Sci. Nat.* xii, pp. 3 & 4.
158. —. Altre osservazioni intorno alle cause dell'albinismo anomalo e periodico. *T. c.* pp. 70 & 71.
159. —. Studi sul mimetismo. *T. c.* pp. 71 & 72.
160. \*FARGES, ALB. La Vie et l'Evolution des espèces, avec une thèse sur l'évolution étendue au corps de l'homme. 3 Ed. rev. et augm. Paris : 8vo, 320 pp.
161. FAYOD, V. Réponse aux remarques de M. le professeur Guignard au sujet de ma communication sur la structure du protoplasme. *C.R. Soc. Biol.* iv, pp. 60-62.
162. FERTON, CH. Notes pour servir à l'histoire de l'instinct des Pompilides. *Act. Soc. L. Bord.* xliv, pp. 281-294.
163. FICK, R. Bemerkungen zu O. Bürger's Erklärungsversuch der Attraktionsphären. *Anat. Anz.* vii, pp. 464-467.
164. —. Ueber die Befruchtung des Axolotleies. *T. c.* pp. 818-821.
165. FIELD, G. W. The Problem of Marine Biology. *Am. Nat.* xxvi, pp. 799-808 ; *Nature*, xlv, pp. 623-625.
166. \*FISCHER-SIGWART, H. Das Gebirge, ein Rückzugsgebiet für die Thierwelt. *MT. Aargau nat. Ges.* 1892, pp. 111-196.
- FLEMING, G. [See NEUMANN, L. G. (374).]
167. FLEMMING, W. Zur Nomenclatur der Zellteilung. *Anat. Anz.* vii, pp. 26-32.
168. —. Ueber Unsichtbarkeit lebendiger Kernstrukturen. *T. c.* pp. 758-764.
169. FLOWER, W. H. The Horse : a Study in Natural History. London : 8vo, 210 pp., figg.
170. \*FRANCESCHINI, R. Die Biologie als selbständige Wissenschaft. Hamburg : 8vo, 38 pp.
171. \*FRANCKE, K. Das Leben der Zelle. Rede. München : 8vo, 9 pp.
172. FRANCKEN, C. J. WIJNAENDTS. Sexueele Evolutie. *Tijdschr. Nederl. Dierk. Ver.* iii, pp. 206-225.
173. FREDERICQ, L. Sur Phémocyanine. *C.R.* cxv, p. 61.
174. —. Nouvelles recherches sur l'autotomie chez le crabe (*Carcinus maenas*). *Arch. Biol.* xii, pp. 169-198.
175. FRENZEL, J. Ueber den Mitteldarm von *Artemia*. Ein Beitrag zur Lehre von der Verdauung und Resorption. *Zool. Jahrb. (Abth. Anat.)* vi, pp. 249-270, 1 pl., 11 figg.

176. [FRENZEL, J.] Beiträge zur vergleichenden Physiologie und Histologie der Verdauung. Arch. Anat. Phys. (Physiol. Abth.), 1892, pp. 81-114, 2 pls.
177. —. Die nucleoläre Kernhalbierung. Ein Beitrag zur Kenntnis des Zellkernes und der amitotischen Epithelregeneration. Arch. mikr. Anat. xxxix (1892), pp. 1-32, 1 pl.
178. FRORIEP, A. Zur Entwicklungsgeschichte der Kopfnerven. I. Entwicklung der Trochlearis bei *Torpedo*. II. Kiemenspaltenorgane der Selachierembryonen. Verb. Anat. Ges. v (1891), pp. 55-65, 6 figg.
179. —. Ueber den Gebrauch der Worte proximal und distal. Anat. Anz. vii, pp. 764-767.
180. FUSARI, R. Sur les premières phases de développement des Téléostéens. Arch. Ital. Biol. xviii, pp. 204-239.
181. GADOW, H. Crop and Sternum of *Opisthocomus cristatus*: a contribution to the question of the Correlation of Organs and the Inheritance of Acquired Characters. P. R. Irish Ac. 1892, pp. 147-153, 2 pls.
182. GAGE, S. H. The Comparative Physiology of Respiration. P. Am. Ass. xli, pp. 183-196.
183. —. The Comparative Physiology of Respiration. Am. Nat. xxvi, pp. 817-832. Cf. Nature, xlii, pp. 598-601.
184. GARNER, R. L. The Speech of Monkeys. London: 8vo, 260 pp.
185. GAUBERT, P. Autotomie chez les Pycnogonides. Bull. Soc. Z. Fr. xvii, pp. 224 & 225.
186. \* —. Sur l'autotomie chez les Araignées. Bull. Soc. Philom. iv, pp. 78 & 79.
187. GAUDRY, A. Similitudes dans la marche de l'évolution sur l'ancien et le nouveau continent. C.R. cxv, pp. 11-13.
188. GAUTIER, A., & LANDI, L. Sur la vie résiduelle et les produits du fonctionnement des tissus séparés de l'être vivant. Op. cit. cxiv, pp. 1048-1053.
189. — & —. Sur les produits du fonctionnement des tissus et particulièrement des muscles, séparés de l'être vivant. Méthodes analytiques. T. c. pp. 1154-1159.
190. — & —. Sur la produits de la vie résiduelle des tissus, en particulier du tissu musculaire séparé de l'être vivant. T. c. pp. 1312-1317.
191. — & —. Phénomènes de la vie résiduelle du muscle séparé de l'être vivant. Action physiologiques des bases musculaires. T. c. pp. 1449-1455.

192. GEDDES, P., & THOMSON, J. A. L'Evolution du Sexe. Trad. franç. par H. de Varigny. Paris: 18mo, x & 457 pp., illustr. (With some emendations.)
193. GEGENBAUR, C. Die Epiglottis. Vergleichend-anatomische Studie. Leipzig: 4to, vii & 69 pp., 2 pls., 15 figg.
194. \*GERLACH, W. Ein Beitrag zur Lehre von den Elementarorganismen. St. Petersburg. med. Wochschr. xvii, pp. 295-297, 1 fig.
195. GEHUCHTEN, A. VAN. Nouvelles recherches sur les ganglions cérébro-spinaux. Cellule, viii, pp. 235-253, 1 pl.
196. —. Contributions à l'étude des ganglions cérébro-spinaux. Bull. Ac. Belg. xxiv, pp. 117-154, 11 figg.
197. \*GERMANO, E. Ricerche istologiche sul testicolo dall nascita alla maturità. Month. Int. J. Anat. Hist. ix, pp. 241-255, 1 pl.
198. GIACOMINI, E. Matériaux pour l'étude du développement du *Seps chalcides*. Arch. Ital. Biol. xvi, pp. 332-359, 1 pl.
199. GIARD, A. Nouvelles remarques sur la pœcilogonie. C.R. cxiv pp. 1549-1552.
200. —. Sur la persistance partielle de la symétrie bilatérale chez un Turbot (*Rhombus maximus*), et sur l'hérédité des caractères acquis chez les Pleuronectes. C.R. Soc. Biol. iv, pp. 31-34.
201. GILSON, G. On the Affinity of Nuclein for Iron and other substances. Rep. Brit. Ass. 1892, pp. 778-780.
202. —. A Method of Staining Chromatin by chemical means. T. c. p. 780.
203. GIRARD, C. Observations sur quelques points de la nomenclature zoologique. Congrès Internat. Zool. ii, pt. 1, pp. 74-97.
204. \*GIROD, P. Manipulations de Zoologie. Guide pour les travaux pratiques de dissection. Animaux vertébrés. Paris: 8vo, vi & 158 pp., 32 pls.
205. GOGORZA Y GONZÁLES, J. Influencia del agua dulce en los animales marinos. Ann. Soc. Españ. Hist. Nat. xx, pp. 221-256 & 257-271.
206. GRABHAM, —. Heredity. J. Inst. Jamaica, i, No. iv, pp. 121-128.
207. GRAFFENBERGER, L. Versuche über die Veränderungen, welche der Abschluss des Lichtes in der chemischen Zusammensetzung des thierischen Organismus und dessen N-Umsatz hervorruft. Arch. ges. Phys. liii, pp. 238-280.
208. GRASSI, B. Conclusioni d'una memoria sulla società dei Termiti. Atti [Rend.] Acc. Rom. 1892, pp. 33-36.
209. \*GRAWITZ, P. Ueber die Umbildung von Grundsubstanz zu Zellen. Deuts. med. Wochschr. xviii (1892), pp. 712-714.
210. —. Ueber die schlummernden Zellen des Bindegewebes und ihr Verhalten bei progressiven Ernährungsstörungen. Arch. pathol. Anat. cxxvii, pp. 96-121.

211. \*[GRAWITZ, P.] Ueber Schlummerzellen und Cellularpathologie. Deuts. med. Wochschr. xviii, pp. 811-813.
212. GRIFFITHS, A. B. The Physiology of the Invertebrata. London : 8vo, ix & 477 pp., 80 figs.
213. —. On the Blood of the Invertebrata. P. R. Soc. Edinb. xix, pp. 116-130.
214. —. Sur la composition de l'hémocyanine. Bull. Ac. Belg. xxiii, pp. 842-844.
215. —. Recherches sur les couleurs de quelques insectes. C.R. cxv, pp. 958 & 959.
216. GROOM, T. T. Early Development of *Cirripedia*. P. R. Soc. lii, pp. 158-162. [Oogenesis, Fertilisation.]
217. GUIGNARD, L. Remarques sur la communication faite par M. Fayod dans la séance du 26 Decembre, 1891, sur la structure du protoplasme. C.R. Soc. Biol. iv, p. 1.
218. —. Remarques au sujet de la deuxième note de M. Fayod sur la structure du protoplasme. T. c. pp. 62-64.
219. \* —. Neue Studien über die Befruchtung. Vergleichung der bei Pflanzen und Thieren beobachteten morphologischen Erscheinungen. Nat. Rundschau. vii, pp. 282 & 283, figg.
220. \*GUINARD, L. Précis de tératologie. Anomalies et monstruosités chez l'homme et chez les animaux. Précédé d'une préface par Cam. Daresté. Paris: 8vo, xxiii & 553 pp., 272 figg.
221. GUITEL, F. Sur l'ovaire et l'œuf du *Gobius minutus*. C.R. cxiv, pp. 612-616.
222. —. Observations sur les mœurs du *Gobius minutus*. Arch. Z. espér. x, pp. 499-555, 1 pl.  
HAACKE, W. [See BREHM (73).]
223. HAASE, S. Untersuchungen über die Mimicry auf Grundlage eines natürlichen Systems der Papilioniden. Biblioth. Zool. (Leuckart & Chun). Cassel : 4to, Heft viii, Theil ii, pp. 1-98, 12 pls., 9 figg.
224. HECKEL, E. Plankton-Composition. Vorläufige Mittheilung. Jen. Z. Nat. xxvii, pp. 559-566.
225. HACKER, V. Die Eibildung bei Cyclops und Canthocamptus. Zool. Jahrb. (Abth. Anat.) vi, pp. 211-248, 1 pl.
226. —. Die heterotypische Kerntheilung im Cyclus der generativen Zellen. Ber. Ges. Freiburg, vi, pp. 160-193, 3 pls.
227. —. Die Kernteilungsvorgänge bei der Mesoderm- und Entodermbildung von Cyclops. Arch. mikr. Anat. xxxix, pp. 556-581 2 pls.
228. —. Ueber specifische Variation bei Arthropoden, im Besonderen über die Schutzanpassungen bei Krabben. Ber. Ges. Freiburg, vi, pp. 90-100.

229. HALLEX, P. Sur l'origine vraisemblablement tératologique de deux espèces de Triclades. C.R. cxiv, pp. 1125-1128; Rev. Sci. xlix, pp. 697 & 698.
230. \*HALLIBURTON, W. D. Lehrbuch der chemischen Physiologie und Pathologie. Unter Mitwirkung des Verfassers deutsch bearbeitet von K. Kaiser. Heidelberg: 8vo, 12 & 883 pp., 100 figg.
231. \*HAMANN, O. Entwicklungslehre und Darwinismus. Eine kritische Darstellung der modernen Entwicklungslehre und ihrer Erklärungsversuche mit besonderer Berücksichtigung der Stellung des Menschen in der Natur. Jena: 8vo, xix & 304 pp., 16 figg.
232. HANSEMAN, D. Ueber die Anaplasie der Geschwulstzellen und die asymmetrische Mitose. Arch. pathol. Anat. cxxix, pp. 436-449.
233. —. Ueber Centrosomen und Attractionsphären in ruhenden Zellen. Anat. Anz. viii, pp. 57-59.
234. HARTOG, M. M. On Rabl's Doctrine of the Personality of the Segments of the Nucleus, and Weismann's "Idant" Theory of Heredity. Rep. Brit. Ass. 1892, pp. 742-744.
235. HATSCHKE, B. Zur Metamerie der Wirbeltiere. Anat. Anz. viii, pp. 89-91.
236. \*HAUPTMANN, C. Beiträge zu einer dynamischen Theorie der Lebewesen. Bd. I. Die Metaphysik in der modernen Physiologie. Dresden: 8vo, vii & 388 pp.
237. HAYCRAFT, J. B. Development of Vertebrate Muscle. First Origin of Vertebrate Fibres. Further Growth. J. Physiol. xiii, pp. 16-18.
238. HEIDENHAIN, M. Ueber die Riesenzellen des Knochenmarkes und ihre Centralkörper. SB. Ges. Würzb. 1892, pp. 130-133.
239. —. Ueber Kern und Protoplasma. In Festschr.-Kœlliker, pp. 109-166, 3 pls.
- HEIDER, K. [See KORSCHULT & HEIDER (306).]
240. HEIM, F. La zoologie et la médecine. Rev. Sci. I, pp. 737-743.
241. —. Sur la matière colorante bleue du sang des Crustacés. C.R. cxiv, pp. 771-774.
242. —. Sur les pigments des œufs des Crustacés. C.R. Soc. Biol. iv, pp. 467-470.  
*Re Colouration.*
243. \*HEINCKE, F. Variabilität und Bastardbildung bei Cyprinoiden. Festschr. Leuckart. pp. 65-73, 3 figg.
244. HELLER, K. M. Ein beachtenswerther Fall von Mimicry. Ent. Nachr. (Karsch) xviii, pp. 183-185.
- HELMHOLTZ, H. VON. [FESTSCHRIFT: see ENGELMANN and others (154).]

245. HENKING, H. Untersuchungen über die ersten Entwicklungsvorgänge in den Eiern der Insecten. III. Specielles und Allgemeines. Z. wiss. Zool. liv, pp. 1-274, 12 pls., 12 figg.
246. ——. Künstliche Nachbildung von Kernteilungsfiguren. Arch. mikr. Anat. xli, pp. 28-39, 1 pl.
247. \*HENNEGUY, F. Classification des œufs des animaux basée sur leur constitution. C.R. Soc. Philom. 1891-92, pp. 1 & 2.
248. \*HENNEGUY, L. F. Essai de classification des œufs des animaux au point de vue embryogénique. Bull. Soc. Philom. iv, pp. 37-44.
249. HERBST, C. Experimentelle Untersuchungen über den Einfluss der veränderten chemischen Zusammensetzung des umgebenden Mediums auf die Entwicklung der Thiere. I Theil. Versuche an Seeigeleiern. Z. wiss. Zool. lv, pp. 446-518, 2 pls.
250. HERDMAN, W. A. Rules of Nomenclature. Nature, xlvi, pp. 417 & 418.
251. HÉRICOURT, J. La médication de M. Brown-Séquard. Rev. Sci. I, pp. 817-821.
252. \*HERRICK, C. L. Metamerism of the Vertebrate Head. J. Comp. Neurol. i (1891), pp. 203 & 204.
253. \*——. Histogenesis and Physiology of the Nervous Elements. *Op. cit.* ii, pp. 137-149.  
——. [See also BROOKS & HERRICK (78).]
254. HERTWIG, O. Text-Book of the Embryology of Man and Mammals. Trans. from 3rd German Ed. by E. L. Mark. London: 8vo, 660 pp., 339 figg., 2 col. pls.
255. ——. Urmund und Spina bifida, eine vergleichend-morphologische, teratologische Studie an missgebildeten Froscheiern. Arch. mikr. Anat. xxxvii, pp. 353-503, 3 pls.
256. ——. Die Zelle und die Gewebe. Grundzüge der allgemeinen Anatomie et Physiologie. Erster Theil. Jena: 8vo, xi & 296 pp., 168 figg.
257. \*——. Ältere und neuere Entwicklungs-Theorien. Berlin: 8vo, 35 pp.
258. HERTWIG, R. Lehrbuch der Zoologie. Teil ii. Jena: 8vo, pp. vii & 321-588, figg. 315-568.
259. ——. Ueber Befruchtung und Conjugation. Verh. deutsch. Zool. Ges. ii, pp. 95-112.
260. HIS, W. Zur allgemeinen Morphologie des Gehirns. Arch. Anat. Phys. (Anat. Abth.) 1892, pp. 346-383, 36 figg.
261. ——. Die Entwicklung der menschlichen und tierischen Physiognomien. T. c. pp. 384-424, 51 figg.

262. [His, W.] Zur Nomenclatur des Gehirns und Rückenmarks. Arch. Anat. Phys. (Anat. Abth.) 1892, pp. 425-428.
263. HODGKINSON, A. Iridescent Colours. Nature, xlv, pp. 92-94.
264. HOLBOROW, A. Evolution and Scripture. London: 8vo, 338 pp.
265. HOLT, E. W. L. North Sea Investigations. J. Mar. Biol. Ass. ii (1892), pp. 216-219, 363-393, & 399-404.  
Re Reproduction of Fishes.
266. HOPKINS, F. G. [Letter to Nature.] Pigments of *Lepidoptera*. Nature, xlv, p. 581.  
Cf. COSTE, t. c. p. 605, and MELDOLA, *ibidem*.
267. HORNELL, J. [Letter to Nature.] A Strange Commensalism—Sponge and Annelid. *Op. cit.* xlvii, p. 78.
268. HORSLEY, V. The Structure and Functions of the Brain and Spinal Cord. Being the Fullerian Lectures for 1891. London and Philadelphia: 8vo, 229 pp., illustr.
269. HORVATH, —. Sur l'existence des séries parallèles dans le cycle biologique des Pemphigiens. C.R. cxiv, pp. 842-844.
270. HOUSSAY, F. Sur la théorie des feuillettes et le parablasse. T. c. pp. 1128-1130.
271. HUDSON, W. H. The Naturalist in La Plata. London: 8vo, 383 pp., illustr.
272. HUDSON, G. V. Instances of Instinct in Insects. Tr. N. Z. Inst. xxiv, pp. 354-358.
273. HURST, C. H. Biological Theories. I. The Nature of Heredity. Nat. Sci. i, pp. 502-507 & 578-587.  
— [See also MARSHALL, A. M., & HURST (341).]
274. HUTCHINSON, H. N. Extinct Monsters: a Popular Account of some of the Larger Forms of Ancient Animal Life. London: 8vo, 234 pp., numerous illustr.
275. HUXLEY, T. H. Essays upon some Controverted Questions. London: 8vo, 616 pp.
276. H. W. [Letter to Nature.] On the Attitudes of the Zebra during sleep, and their Influence on the Protective Value of its Stripes. Nature, xlv, p. 248.
277. IMHOF, O. E. Programm zu einer monographischen Bearbeitung eines grösseren Sees, enthaltend die verschiedenen Gesichtspunkte, deren eingehendes Studium zur Erkenntnis der Existenzbedingungen des gesammten organischen Lebens der Seen nothwendig ist. Biol. Centralbl. xii, pp. 512-521.
278. —. Die Zusammensetzung der pelagischen Fauna der Süsswasserbecken. Biol. Centralbl. xii, pp. 171-182 & 200-205.

279. [IMHOF, O. E.] Vorläufige notiz über die Lebensverhältnisse und Existenz-bedingungen der pelagischen und Tiefsee- Flora und Fauna der Seen. *T. c.* pp. 521-523.
280. —. Les conditions de milieu dans les lacs d'eau douce. *Rev. Sci.* I, pp. 497-500.
281. —. Considérations générales sur la faune des Invertébrés de la Suisse. *C.R. Soc. helv. Sci. Nat.* lxxiv, pp. 56-66.
282. \* —. Ueber das Leben und die Lebensverhältnisse zugefrorener Seen. *MT. Aargau. nat. Ges.* 1892, pp. 42-58. *Cf.* Beiträge zur Fauna der Schweiz. Thierwelt der Stehenden Gewässer. *T. c.* pp. 59-110.
283. ISCHIKAWA, C. Studies on Reproductive Elements. 1. Spermatogenesis, Ovogenesis, and Fertilisation in *Diaptomus*. *J. Coll. Sci. Japan*, v, pp. 1-34, 1 pl.
284. \*JACQUART, E. Ce qu'il faut penser de l'intelligence des animaux. Lyon : 8vo, 62 pp.
285. \*JARISCH, —. Ueber die Bildung des Pigmentes in den Oberhautzellen. *Arch. Dermatol.* xxiv, pp. 223 & 224, 1 pl.  
*Re Colouration.*
286. JENSEN, P. Ueber den Geotropismus niederer Organismen. *Arch. ges. Physiol.* liii, pp. 428-480, 13 figg.
287. —. Methode der Beobachtung und Vivisection von Infusorien in Gelatinelösung. *Biol. Centralbl.* xii, pp. 556-560.
288. JOHNS, B. G. The Protective Colour in Animals. *Nineteenth Century*, xxxii, pp. 454-469.
289. JOHNSON, H. P. Amitosis in the Embryonal Envelopes of the Scorpion. *Bull. Mus. C. Z.* xxii, pp. 127-161, 3 pls.
290. JOSEPH, G. L'influence de l'éclairage sur la disjunction des organes visuels, leur réduction, leur atrophie complète, et leur compensation chez les animaux cavernicoles. *Bull. Soc. Z. Fr.* xvii, pp. 121-125.
291. \*KELLER, C. Alpentiere im Wechsel der Zeit. (Marshall's Zool. Vorträge.) Leipzig : 8vo, 48 pp.
292. KENNEL, J. VON. Mimicry bei kleinen Insecten. *Ent. Nachr.* xviii, pp. 159 & 160.
293. —. Questions proposées par M. le Prof. Cosmovici: 1. Sur une division définitive du règne animal en "phyla," division basée sur les recherches morpho-embryologiques. 2. Fondement naturel d'un système du type des vers. 3. Uniformité de la terminologie des organes sécrétoires des vers. *Congrès Internat. Zool.* ii, pt. 1, pp. 68-73.
294. KIPLING, J. L. *Beast and Man in India.* New Edition. London: 8vo, 356 pp., illustr.

295. KNAUTHE, K. Ueber vererbte Verstümmelungen. *Zool. Anz.* xv, p. 5.
296. —. Ueber Melanismus bei Fischen. *T. c.* p. 25.
297. KOCHS, W. Ueber die Vorgänge beim Einfrieren und Austrocknen von Tieren und Pflanzensamen. *Biol. Centralbl.* xii, pp. 330–339.
298. \*KOCKS, J. Ueber die Korrelation des Wachstums der rudimentären organe und ihres Mutterbodens. *Verh. Deuts. Ges. Gynäkol.* iv, Kongress, pp. 425–432.
299. KENIG-WARTHAUSEN, FRHR. R. Ueber die Färbung der Vogeleier und über späte Vogelbruten. *JH. Ver. Württ.* xlviii, pp. 63–65.
300. \*KÖHNCKE, H. Thier und Mensch. Plaudereien aus dem Zoologischen Garten. Part 1, 66 pp. Hamburg: 8vo.
301. KÖLLIKER, A. VON. Nervenzellen und Nervenfasern. *Biol. Centralbl.* xii, pp. 33–51.
302. —. Ueber die Entwicklung der Elemente des Nervensystems, contra Beard und Dohrn. *Verh. Anat. Ges.* vi (1892), pp. 76–78.  
— [Festschrift; see SCHULTZE and others (458).]
303. \*KÖPPEN, M. Beiträge zur vergleichenden Anatomie des Centralnervensystems der Wirbelthiere. Zur Anatomie des Eidechsengehirns. *Morph. Arb.* (Schwalbe), i, pp. 496–515, 3 pls.
304. KOHL, C. Rudimentäre Wirbeltieraugen. Teil I. *Bibl. Zool.* Heft 13, 143 pp., 9 pls.
305. \*KORSCHULT, E. Entwicklungsmechanische Studien. *Nat. Rundschau*, vii, pp. 11, 12, & 89.
306. KORSCHULT, E., & HEIDER, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Part II. Jena: 8vo, pp. 309–908, 315 figg.
307. \*KOSTANECKI, K. VON. Ueber die Schicksale der Centralspindel bei karyokinetischer Zellteilung. *Anat. Hefte* ii, pp. 249–268, 36 figg.
308. \*KOSTANECKI, V. VON. Ueber Kernteilung bei Riesenzellen nach Beobachtungen an der embryonalen Säugetierleber. *Anat. Hefte* i, pp. 323–352, 20 figg.
309. \*KRÄPELIN, K. Die Brutpflege der Thiere (Sammlung Vortr. Virchow und Wattenbach). Hamburg: 8vo, 26 pp.
310. KRASSER, F. Zur Structur des ruhenden Zellkerns. *SB. Ak. Wien*, ci, pp. 560–583.
311. KROMAYER, F. Die Protoplasmafaserung der Epithelzelle. *Arch. mkr. Anat.* xxxix (1892), pp. 141–150, 1 pl.
312. KRÜMMEL, O. Reisebeschreibung der Plankton-Expedition nebst Einleitung von V. Hensen, und Vorberichten von Dahl, Apstein, Lohmann, Borgert, Schütt, und Brandt. Mit 100 figg. in Text, sowie 5 Karten, u. 1 Photogravure. Kiel u. Leipzig: 4to, 370 pp.

313. KUNCKEL D'HERCULAIS. Le Criquet pèlerin (*Schistocerca peregrina*, Oliv.), et ses changements de coloration. Rôle des pigments dans les phénomènes d'histolyse et d'histogénèse qui accompagnent la métamorphose. C.R. cxiv, pp. 240-242.

*Re Colouration.*

314. \*KUPFFER, C. VON. The Development of the Cranial Nerves of Vertebrates. J. Comp. Neurol. i (1891), pp. 246-264.
315. \*LABORDE, J. V. Traité élémentaire de Physiologie. Paris: 8vo, 387 pp., 25 pls., 130 figg.
316. \*LAMEERE, A. Esquisse de la Zoologie. Bruxelles: 12mo, 302 pp. LANDI, L. [See GAUTIER & LANDI (188-191).]
317. \*LANDOIS, H. Die Ernährung der Larven und Embryonen ist bestimmend für die Entstehung der Geschlechter. Nat. Wochenschr. vii, p. 170.
318. LANG, A. Lehrbuch der vergleichenden Anatomie zum Gebrauche bei vergleichend anatomischen und zoologischen Vorlesungen. 3 Abth. Jena: 8vo, pp. 567-870, 219 figg.  
Translation of previous parts into English (H. M. & M. Bernard), and into French (G. Curtel).
319. —. Die Asymmetrie der Gastropoden. Viert. Ges. Zurich, xxxvi (1891), pp. 339-371, 22 figg.
320. \*LATASTE, F. Indications nouvelles et réponse à une réclamation de priorité, à propos de sa publication: Pourquoi, dans le même type de Vertébrés la masse relative de l'encéphale varie en sens inverse de la masse du corps. Act. Soc. Sci. Chili, i, pp. 35-38.
321. LA VALETTE, ST. GEORGE. Ueber innere Zwitterbildung beim Flusskrebs. Arch. mikr. Anat. xxxix, pp. 504-524, 1 pl.
322. LEA, A. SHERIDAN. The Chemical Basis of the Animal Body: an Appendix to Foster's Text-book of Physiology. London: 8vo, 266 pp.
323. LEBRUN, H. Les centrosomes dans l'œuf de l'*Ascaris megalocephala*. Anat. Anz. vii, pp. 627 & 628.
324. LEUCKART, R. Festschrift zum siebenzigsten Geburtstage Rudolf Leuckarts. Dem verehrten Jubilar dargebracht von seinen dankbaren Schülern. Leipzig: 4to, xv & 413 pp., 40 pls., 43 figg., and portrait.
325. LILIENFELD, L., & MONTI, ACHILLE. Sulla localizzazione microchimica del fosforo nei tessuti. Atti Acc. Rom. 1892, pp. 354-358.
326. LOCARD, A. L'influence du milieu sur la variation. Rev. Sci. xlix, pp. 724-726.

327. LOOSS, A. Schmarotzerthum in der Thierwelt. (Marshall's Vorträge.) Leipzig: 8vo, 180 pp.
- LORIA, A. [See MORSELLI (366).]
328. \*LOTHES, R. Präparirmethodik. Eine Anleitung zu den anatomischen Uebungen für die Studierenden der Thiermedizin. Berlin: 8vo, vi & 135 pp., 8 pls.
329. \*LWOFF, W. Gegenwärtiger Stand der Frage von der Polyspermie (Russian). Rev. Sci. Nat. St. Petersb. iii, pp. 23-30.
330. LYDEKKER, R. Phases of Animal Life: Past and Present. London: 8vo, 234 pp.
332. MCKENDRICK, J. G. Life in Motion; or Muscle and Nerve. London and Edinburgh: 8vo, xiii & 202 pp., 81 figg.
333. McMURRICH, J. P. Definite *versus* Fortuitous Variation. [Discussion.] Am. Nat. xxvi, pp. 85-91.
334. \*MACPHERSON, A. H. Albinism in Birds and Mammals. Zool. xvi, p. 191.
335. MANN, G. The Functions, Staining Reactions, and Structure of Nuclei. Rep. Brit. Ass. 1892, pp. 753 & 754.
336. —. The Origin of Sex. *T. c.* pp. 756 & 757.
337. MARCHAL, P. Notes sur La Vie et les Mœurs des Insectes: observations sur l'*Ammophila affinis*, Kirby. Arch. Z. expér. x, pp. 23-36.  
*Re Instinct.*
338. \*MARENZELLER, E. VON. Das Heim der Tiefseethiere. Schr. Ver. Verbr. nat. Kenntn. Wien, Bd. xxxii, pp. 149-177.
339. \*MAREY, J. La Photographie du mouvement. Avec chromophotographies originales reproduites en photogravures sans intervention de la main humaine. Paris: 8vo, 90 pp.
- MARK, E. L. [See HERTWIG, O. (254).]
340. MARSHALL, A. MILNES. Descriptive Catalogue of the Embryological Models, Manchester Museum. Manchester: 8vo, 160 pp.
341. MARSHALL, A. M., & HURST, C. H. A Junior Course of Practical Zoology. 3rd Edition. London: 8vo, 502 pp., figg.
342. MARSHALL, W. Das Thema der Flughautbildungen von einem allgemeinen Gesichtspunkte. SB. Ges. Leipzig, xvii-xviii Jhg. pp. 11-13.
343. \*MATTHIESEN, L. Die neueren Fortschritte in unserer Kenntniss von dem optischen Baue des Auges der Wirbelthiere. Hamburg and Leipzig: 8vo, 63 pp., 2 pls.  
From Festschrift Helmholtz.

MATTHIEU-WILLIAMS, W. [See ROMANES (435).]

344. MEEHAN, T. Definite versus Fortuitous Variation. [Discussion.]  
Am. Nat. xxvi, pp. 85-91.

MELDOLA, R. [See HOPKINS (266).]

345. \*MELTZER, S. J. On the Importance of Vibration to Cell Life.  
New York Med. J. v, pp. 708-712.

346. MERRIFIELD, F. Double-broodedness: whether influenced by the  
state of the food-plant? Ent. M. M. xxviii, pp. 20 & 21.

347. METSCHNIKOFF, E. Léçons sur la Pathologie comparée de l'inflam-  
mation faites à l'Institut Pasteur en Avril et Mai, 1891. Paris: 8vo,  
1892, 235 pp., 65 figg., 13 col. pls.

348. —. La Lutte pour l'existence entre les diverses parties de  
l'organisme. Rev. Sci. I, pp. 321-326.

349. MIALL, L. C. The Surface-Film of Water, and its relation to the  
life of Plants and Animals. Nature, xlv, pp. 7-11.

350. MICHAEL, A. D. On the Variations in the Internal Anatomy of the  
*Gamasinæ*, especially in that of the genital organs, and on their mode  
of coition. Tr. L. S. v, pp. 281-324, 4 pls.

351. MILES, MANLY. Heredity of Acquired Characters. P. Am. Ass.  
xli, pp. 202-211.

352. —. Heredity of Acquired Characters. Am. Nat. xxvi, pp.  
887-900.

353. MINERVINI, R. Contributo alla Morfologia dell'adattamento fun-  
zionale degli organi: particolarità di struttura delle arterie della cute.  
Boll. Soc. Nat. Napoli, vi, pp. 138-152, 1 pl.

354. MINGAZZINI, P. L'Oolisi nella *Seps chalcides*. Atti [Rend.] Acc.  
Rom. 1892, pp. 41-45. Cf. Mon. Zool. iii, pp. 8 & 9.

355. MINOT, C. S. Human Embryology. New York: 8vo, xxiii &  
815 pp., 463 figg.

*Re Generalities.*

356. MITCHELL, P. C. Death. Nat. Sci. i, pp. 434-441.

MIVART, ST. GEORGE. [See DIXON (127).]

357. \*MÜBIUS, K. Die Thiergebiete der Erde, ihre kartographische  
Abgrenzung und museologische Bezeichnung. Nat. Wochenschr.  
vii, pp. 107 & 108.

MONTI, A. [See LILIENFELD & MONTI (325).]

358. MONTICELLI, F. S. Sul nucleo vitellino del uova dei Trematodi.  
Boll. Soc. Nat. Napoli, vi, pp. 5-8.

359. \* —. Recherche sulla spermatogenesi nei Trematodi. Month. Int.  
J. Anat. Hist. ix, pp. 112-118 & 121-149, 2 pls.

360. MOORE, J. E. S. On the Relationships and Rôle of Archoplasm during Mitosis in the Larval Salamander. *Q. J. Micr. Sci.* xxxiv, 1892, pp. 181-197, 1 pl.
361. —. On the Relationships and Rôle of the Archoplasmic Body during Mitosis in the Larval Salamander. *Rep. Brit. Ass.* 1892, pp. 755 & 756.
362. MORGAN, C. LLOYD. The Method of Comparative Psychology. *T. c.* pp. 754 & 755.
363. —. Factors in the Evolution of Mammals. *Nat. Sci.* i, pp. 97-101.  
— . [See also DIXON (127).]
364. MORGAN, T. H. Spiral Modification of Metamerism. *J. Morph.* vii, pp. 245-251, 3 figg.
365. MORRIS, C. The Origin of Lungs, a chapter in Evolution. *Am. Nat.* xxvi, pp. 975-986.
366. \*MORSELLI, E. Carlo Darwin e il Darwinismo nelle Scienze biologiche e sociali. Scritti vari di G. Canestrini, G. Cattaneo, A. Loria, &c. Milano : 8vo, 312 pp.
367. MOSELEY, H. N. Notes by a Naturalist : an Account of Observations made during the Voyage of H.M.S. "Challenger." New and revised edition, with map, portrait, and woodcuts, and a brief memoir of the author. London : 8vo, 562 pp.
368. \*MOTTO, COCO A. Leggendo Darwin : contributo-psicologico. Napoli : 8vo, 16 pp.
369. \*MÜLLER, J. Ueber Gamophagie. Ein Versuch zum weiteren Ausbau der Theorie der Befruchtung und Vererbung. Stuttgart : 8vo, 64 pp.
370. \*NADAILLAC, LE MARQUIS DE. Intelligence et Instinct. Paris : 8vo, 79 pp.
371. NAGEL, W. Beobachtungen über das Verhalten einiger wirbelloser Thiere gegen galvanische und faradische Reizung. *Arch. ges. Phys.* lii, pp. 624-631.
372. —. Fortgesetzte Beobachtungen über polare galvanische Reizung bei Wasserthieren. *Op. cit.* liii, pp. 332-347.
373. NATHUSIUS, W. VON. Die fibrilläre Structur der Hornzellen der Haare. *Zool. Anz.* xv, pp. 395-400, 9 figg.
374. \*NEUMANN, L. G. Treatise on the Parasites and Parasitic Diseases of the Domestic Animals. Trans. and ed. by G. FLEMING. London : 8vo, 812 pp., 365 figg.
375. \*NEVIANI, A. Riproduzione animale e vegetale. *Rev. Ital. Sci. Nat.* xii, pp. 86-88, 101, 102, 105-109, 134-136, & 137-141.

376. NICOLAS, A. Les sphères attractives et le fuseau achromatique dans le testicule adulte, dans la glande génitale et le rein embryonnaires de la Salamandre. C.R. Soc. Biol. iv (1892), pp. 472-477.
377. —. Les spermatogonies chez la Salamandre d'hiver (noyaux polymorphes ; sphère attractive, division directe). C.R. Soc. Biol. iv, pp. 590-595.
378. \*NORMAN, A. M. Museum Normanicum, or a Catalogue of the Invertebrata of Europe, and the Arctic and North Atlantic Oceans, which are contained in the Collection of the Rev. Canon A. M. Norman. VII. *Spongozoa*. VIII. *Rhipopoda*. Printed for private distribution. Durham : 8vo, 21 pp.
379. NUSSBAUM, M. Beiträge zur Lehre von der Fortpflanzung und Vererbung. Arch. mikr. Anat. xli, pp. 129-145.
380. NUTTING, C. C. What is an "Acquired character"? Am. Nat. xxvi, pp. 1009-1013.
381. OKA, A. Die periodische Regeneration der oberen Körperhälfte bei den Diplosomiden. Biol. Centralbl. xii, pp. 265-268.
382. OLIVIER, L. On the Canalisation of Cells, and the Continuity of Living Matter in Plants and Animals. Rep. Brit. Ass. 1892, pp. 792 & 793.
383. OPPEL, A. Die Befruchtung des Reptilieneies. Arch. mikr. Anat. xxxix, pp. 215-290, 4 pls.
384. —. Unsere Kenntniss von der Entstehung der roten und weissen Blutkörperchen. Zusammenfassendes Referat. Centralbl. Pathol. iii, pp. 193-217 & 241-259.
- See for notice of various papers on this subject, not included in this record.
385. OSBORN, H. F. The Difficulties in Hereditary Theory. Am. Nat. xxvi, pp. 537-567.
386. —. Heredity and the Germ Cells. T. c. pp. 642-670.
387. \*OSBORN, H. L. The *Protozoa*—a Phylum of the Animal Kingdom considered Biologically. Am. Micr. J. xiii, pp. 233-243, 1 pl.
388. —. Introduction to Elementary Biology. *Op. cit.* xii, pp. 241-243 ; xiii, pp. 9-11 & 26-28.
389. PASSY, J. La photographie du mouvement. Rev. Sci. xlix, pp. 17-20.
390. PEARSON, K. The Grammar of Science. London : 8vo, pp. PECHUEL-LOESCHE. [See BREHM (73).]
391. PERÉNYI, J. Die Entstehung des Mesoderms. Math. nat. Ber. Ung. viii, pp. 272-278, 2 pls.
392. \*PERRIER, Remy. Éléments d'anatomie comparée. Paris : 8vo, 1200 pp., 600 figg., 8 col. pls.

393. \*PERRIER, E. *Traité de Zoologie*. 1 Partie. Zoologie générale, Protozoaires et Phytozoaires. Paris : 8vo, vii & 865 pp., 700 figg.
394. PETERSEN, W. Ueber die Ungleichzeitigkeit in der Erscheinung der Geschlechter bei Schmetterlingen. *Zool. Jahrb. (Abth. Syst. Geog. Biol.)*, vi, pp. 671-679.
395. PHILIPPON, G. Effets de la décompression brusque sur les animaux placés dans l'air comprimé. *C.R.* cxv, pp. 186-188.
396. PICTET, C. Spermatogénèse et Fécondation chez les Animaux Invertébrés. *Arch. Phys. Nat.* xxvii, pp. 175-214 [*cf.* same in *MT. z. Stat. Neap.* x (1891), pp. 75-152, 2 pls.].
397. PLATEAU, F. La ressemblance protectrice dans le règne animal. *Bull. Ac. Belg.* xxiii, pp. 89-135.
398. PŒHL, A. Action physiologique de la spermine. Interprétation de ses effets sur l'organisme. *C.R.* cxv, pp. 129-132.
399. —. Du rôle de la spermine dans les oxydations intra-organiques. *T. c.* pp. 518-521.
400. \*POSNER, C. Weitere Notiz zur Chemie des Samens. *CB. med. Wiss.* 1892, pp. 225 & 226.
401. POUCHET, G. Sur la formation du pigment mélanique. *C.R. Soc. Biol.* iv, p. 516.
402. POULTON, E. B. Further Experiments upon the Colour-relation between certain Lepidopterous larvæ, pupæ, cocoons, and imagines, and their surroundings. *Tr. E. Soc.* 1892, pp. 293-487, pls. xiv & xv.  
— [See also BATESON (34).]
403. PRENANT, A. Sur la signification de la cellule accessoire du testicule et sur la comparaison morphologique des éléments du testicule et de l'ovaire. *J. de l'Anat. Phys.* xxviii, pp. 292-321 & 529-562.
404. —. Contribution à l'étude de la division cellulaire. Le corps intermédiaire de Flemming dans les cellules séminales de la Scolopendre et de la Lithobie. *Arch. Phys.* xxiv, pp. 295-310, 1 pl.
405. —. Le corps intermédiaire de Flemming dans les cellules séminales de la Scolopendre et de la Lithobie. *C.R. Soc. Biol.* iv, pp. 172-176.
406. —. Le corpuscle central d'E. van Beneden dans les cellules séminales de la Scolopendre. *T. c.* pp. 221-225.
408. —. L'origine du fuseau achromatique nucléaire dans les cellules séminales de la Scolopendre. *T. c.* pp. 219-253.
409. QUATREFAGES, A. DE. Darwin et ses précurseurs français. Étude sur le transformisme. 2 Ed. rev. et augm. Paris : 8vo, 299 pp.

410. RABL, C. Theorie des Mesoderm (Fortsetzung). Morph. JB. xix, pp. 65-144, 4 pls., 3 figg.
411. —. Ueber die Metamerie des Wirbeltierkopfes. Verh. Anat. Ges. vi (1892), pp. 104-135, 1 pl., 4 figg.
412. \*RAILLET, A. Parasites animaux. Les parasites transmissibles des animaux à l'homme envisagés spécialement au point de vue de la prophylaxie. Paris: 8vo, 48 pp.
413. RANDOLPH, H. The Regeneration of the Tail in *Lumbriculus*. J. Morph. vii, pp. 317-344, 4 pls.  
General considerations as to regeneration.
414. \*RANVIER, L. Le système vasculaire. J. Microgr. xv, pp. 295-303, and xvi, pp. 135-142.
415. \* —. Les éléments et les tissus du système conjonctif (Suite). *Op. cit.* xv, pp. 321-326.
416. RASPAIL, X. Description d'une série de pontes d'Oiseaux au point de vue de la coloration et de la forme des œufs. Mém. Soc. Zool. v, pp. 174-189.
417. —. À propos de l'origine de la couleur des œufs des Oiseaux. Bull. Soc. Z. Fr. xvii, pp. 212-218.
418. RATH, O. VOM. Kritik einiger Fälle von scheinbarer Vererbung von Verletzungen. Ber. Ges. Freiburg, vi, pp. 101-113.
419. —. Zur Kenntniss der Spermatogenese von *Gryllotalpa vulgaris*, Latr., mit besonderer Berücksichtigung der Frage der Reduktions- theilung. Arch. mikr. Anat. xl, pp. 102-132, 2 pls.
420. \*RAWITZ, B. Compendium der vergleichenden Anatomie. Leipzig: 8vo, v & 272 pp., 90 figg.
421. REICHENOW, A. Handwörterbuch der Zoologie, Anthropologie, und Ethnologie. Bd. vi. Breslau: 8vo, 571 pp., figg.
422. \*REPIACHOFF, W. Ueber die Gastrulation der Wirbeltiere nebst Bemerkungen über die Homologie der Keimblätter der Metazoen. [Russian.] Mém. Soc. Nat. Nouv. Russ. xvii, 24 pp.
423. \*REITTERER, E. Anatomie et Physiologie animales. Paris: 16mo, 590 pp., illustr.
424. RETZIUS, G. Biologische Untersuchungen. Neue Folge. Stockholm and Leipzig: 4to, ii, 53 pp., 16 pls.; iii, 68 pp., 23 pls.; iv, 70 pp., 29 pls.
425. RILEY, C. V. Fortuitous Variation. Abstract. Am. Nat. xxvi, pp. 861-863.
426. —. The transmission of Acquired Characters through Heredity. Abstract. Nature, xlvi, pp. 504 & 505.
427. RITZEMA-BOS, J. Zoologie für Landwirthe. Berlin: 8vo, viii & 182 pp., 149 figg.

428. ROBINSON, A. The Nutritive Importance of the Yolk-sac. *J. Anat. Phys.* xxvi, pp. 308-323, 1 pl.
429. ROEMER, F. Die chemische Reizbarkeit tierischer Zellen. *Arch. Pathol.* cxxviii, pp. 98-131, 1 pl.
430. ROHDE, E. Muskel und Nerv. I. *Ascaris*. II. *Mermis* und *Amphioxus*. III. *Gordius*. *Zool. Beitr.* iii, pp. 69-106, 6 pls.; pp. 161-182, 4 pls.; pp. 183-192.  
General Histology.
431. —. Muskel und Nerve bei Nematoden. *SB. Ak. Berlin*, 1892, pp. 515-526.  
General Histology.
432. —. Muskel und Nerve bei *Mermis* und *Amphioxus*. *SB. Ak. Berlin*, 1892, pp. 659-664.
433. ROMANES, G. J. Darwin, and after Darwin: an Exposition of the Darwinian Theory, and a Discussion of Post-Darwinian Questions. Vol. I. The Darwinian Theory. London: 8vo, 430 pp., illustrated.
434. —. Darwin und nach Darwin. Eine Darstellung der Darwin'schen Theorie, und Erörterung Darwinistischer Streitfragen. Bd. I. Die Darwin'sche Theorie aus d. Engl. von B. Vetter. Leipzig: 8vo, vii & 542 pp., 1 portrait, 124 figg.
435. —. [Letter to Nature.] The Migration of the Lemming. *Nature*, xlv, p. 248. Cf. CROTCH, *t. c.* p. 294, and MATTIEU-WILLIAMS, *t. c.* p. 295.
436. ROULE, L. L'Embryologie générale. Paris: 16mo, xiv & 510 pp., 121 figs.
437. —. Les affinités zoologiques des Vertébrés. *Rev. Sci.* xlix, pp. 588-594.
438. ROUX, W. Ueber das entwickelungsmechanische Vermögen jeder der beiden ersten Furchungszellen des Eies. *Verh. Anat. Ges.* vi, 1892, pp. 22-62.
439. —. Beitrag zur Entwicklungsmechanik des Embryo. Ueber die morphologische Polarisation von Eiern und Embryonen durch den elektrischen Strom, sowie über die Wirkung des elektrischen Strom auf die Richtung des ersten Theilung des Eies. *SB. Ak. Wien*. ci, pp. 27-234, 3 pls; *Ber. Nat. Med. Ver. Innsbruck*, xx, pp. 3-57.
440. RÜCKERT, J. Zur Entwicklungsgeschichte des Ovarialeies bei Selachiern. *Anat. Anz.* vii, pp. 107-158, 6 figs.
441. —. Ueber physiologische Polyspermie bei meroblastischer Wirbeltiereiern. *Verh. Anat. Ges.* vii, pp. 320-333, 2 figs.
442. —. Ueber die Verdoppelung der Chromosomen im Keimbläschen des Selachiereies. *Anat. Anz.* viii, pp. 44-52, 2 figg.

443. RYDER, J. A. On the mechanical genesis of the Scales of Fishes. P. Ac. Philad. 1892, pp. 219-224.
444. —. The Principle of the Conservation of Energy in Biological Evolution : a Reclamation and Critique. *T. c.* pp. 455-468.
445. —. A Geometrical Representation of the relative intensity of the Conflict between Organisms. *Am. Nat.* xxvi, pp. 923-929.
446. SABATIER, A. Essai sur la Vie et la Mort. Paris : 8vo, 277 pp.
447. —. La synthèse des êtres vivants. *Rev. Sci.* l, pp. 16-29.
448. SAINT-REMY, G. Sur l'histologie de la glande pituitaire. *C.R.* cxiv, pp. 770 & 771.
449. \*SCERVINI, P. Anatomia dei centri nervosi. Napoli: xii & 356 pp., figg.
450. SCHAAFFHAUSEN, —. Ueber die Urzeugung. *CB. Ver. Rheinl.* xlix, pp. 32-40.
451. \*SCHILLER-TIETZ, —. Folgen, Bedeutung und Wesen der Blutverwandtschaft (Inzucht) im Menschen-, Thier-, und Pflanzenleben. 2te verm. u. völlig umgearb. Aufl. Berlin u. Neuwied : 8vo, 94 pp.
452. \*SCHIRSCHOFF, D. J. Ueber die Beziehung der Körperform der Fische zur Stromstärke des von ihnen bewohnten Bassins. *Trudui St. Petersburg Est.* xxiii, pp. 79-99.
453. SCHMIDT, H. Schlummernde Zellen im normalen und pathologisch-veränderten Fettgewebe. *Arch. pathol.* cxxviii, pp. 58-97, 1 pl.
454. \*SCHMUL, A. Ueber das Schicksal des Eisens im thierischen Organismus. Inaug. Diss. Dorpat: 8vo, 28 pp.
455. SCHNEIDER, K. C. Zur Frage der Entwicklung des Intellekts. *Biol. Centralbl.* xii, pp. 30-32.
456. SCHNEIDER, R. Verbreitung und Bedeutung des Eisens im animalischen Körper. *Verh. Deutsche Naturf.* 64 vers., pp. 111-116.
- 456A. SCHOFIELD, A. T. Elementary Physiology for Students. London : 8vo, xii & 372 pp., 227 figg., 2 col. pls.
457. \*SCHOTTLÄNDER, —. Ueber die Entstehung des Graaf'schen Follikels beim Menschen und seinen Untergang bei Mensch und Säugthieren. *Z. Geburtshilfe u. Gynäkol.* xxiv, pp. 312-314.
458. SCHULTZE, O. [and others]. Festschrift Herrn Geheimrath Albert von Koelliker zur Feier seines fünfzigjährigen medicinischen Doctorjubiläums gewidmet vom dem anatomischen Institut der Universität Würzburg. (Schultze, O.; Fick, R.; Voll, A.; Sclavunos, G.; Heidenhain, M.) Leipzig : fol., 166 pp., 11 pls., 2 figg.
459. \*SCHULZ, P. Ueber die in historischer Zeit ausgestorbenen Thiere. Berlin : 4to, 35 pp., 5 figg.
460. SCHULZE, F. E. Ueber die Bezeichnung der Lage und Richtung im Thierkörper. *SB. nat. Fr.* 1892, pp. 43-51.

461. SCHÜTT, F. Analytische Plankton Studien. Ziele, Methoden, und Anfangsresultate der quantitative-analytischen Planktonforschung. Kiel and Leipzig : 8vo, 117 pp., 16 tables, 1 map.
  462. \*SCHWEIGER-LERCHENFELD, A. VON. Das Mikroskop. Leitfaden des mikroskopischen Technik nach dem heutigen Stande der theoretischen und praktischen Erfahrungen. Wien & Leipzig : 8vo, 144 pp., 91 figg., 13 pls.
  463. \*SEITZ, AD. Ueber gewisse Eigenthümlichkeiten bei Fortpflanzung einiger Thiere. Ber. Oberhess. Ges. xxviii, pp. 118 & 119.
  464. SEMON, R. Studien über den Bauplan des Urogenitalsystems der Wirbeltiere. Dargelegt an der Entwicklung dieses Organsystems bei *Ichthyophis glutinosus*. Jen. Z. Nat. xxvi, pp. 89–203, 14 pls.
  465. SEMPER, C. Ueber Farbenveränderung einiger Fische. Arb. Inst. Würzb. x, pp. 15–19, 1 pl.
  466. \*SHALER, N. S. Nature and Man in North America. London : 8vo, 290 pp.
  467. SICARD, H. L'évolution sexuelle dans l'Espèce humaine. Paris : 8vo, 319 pp., 94 figg.
  468. SIEGFRIED, M. Ueber die chemischen Eigenschaften des reticulierten Gewebes. Ber. Sächs. Ges. 1892, p. 306.
  469. \*——. Ueber die chemischen Eigenschaften des reticulierten Gewebes. Habilit. Schrift. Leipzig : 8vo, 21 pp.
  470. SIMROTH, H. Einige Punkte aus der Oekonomie des Weichthierkörpers, ein Kapitel über Constitution. Leopoldina, xxviii, pp. 100–102, 121–125, & 141–144.
  471. ——. Ueber die Nahrung der Landthiere. SB. Ges. Leipzig, xvii, xviii, Jhr., pp. 14–17.
  472. ——. Ueber das Plankton. SB. Ges. Leipzig, Jhr. 1891–92, pp. 86 & 87.
  473. SMITH, W. W. Evolution of Colours in the *Vanessa*. Ent. xxv, pp. 27 & 28.
  474. SOLGER, B. Zelle und Zellkern. (Bd. III. Thiermedizinische Vorträge herausgegeben von G. Schneidemühl.) Leipzig : 8vo, 61 pp., 1 pl.
  475. \*——. Ueber die Architektur der Stützsubstanzen. Leipzig : 8vo, 36 pp., 6 figg.
  476. SOREL, G. A propos des lois mathématiques de M. Delbœuf. Rev. Sci. xlix, pp. 461–465.
  477. SPULER, A. Zur Phylogenie und Ontogenie des Flügelgeäders der Schmetterlinge. Z. wiss. Zool. liii, pp. 597–646, 2 pls.
- Re Evolution, Eimer's Theory, &c.*
478. STOLL, O. Zur Zoogeographie der landbewohnenden Wirbellosen. Viert. Ges. Zürich, xxxvii, pp. 233–273.

479. STRACHLEY, E. O. Die Karyomitose bei abnormer Entwicklung des Forelleneies. MT. Emb. Inst. Wien, xii, pp. 20-22.
480. STRICHT, VAN DER. Nouvelles recherches sur la genèse des globules rouges et des globules blancs du sang. Arch. Biol. xii, pp. 199-344, 6 pls.
481. —. Contribution à l'étude de la sphère attractive. Arch. Biol. xii, pp. 741-763, 1 pl. ; Bull. Ac. Belg. xxiii, pp. 167-192, 1 pl.
482. SUCHETET, A. Les Oiseaux hybrides rencontrés à l'état sauvage. 3 Partie. Mém. Soc. Zool. v, pp. 253-525.
483. \*SUSSDORF, M. Lehrbuch der vergleichenden Anatomie der Haustiere. Stuttgart : 8vo, Lief 2, pp. 161-320, 45 figg.  
TASCHENBERG, E. L. [See BREHM (73).]
484. TASCHENBERG, O. Historische Entwicklung der Lehre von der Parthenogenesis. Abh. Ges. Halle, xvii, pp. 365-454.
485. —. Bibliotheca Zoologica. II. Verzeichniss der Schriften über Zoologie, welche in den periodischen Werken enthalten und vom Jahre 1861-1880 selbständig erschienen sind. Bearb. von O. Taschenberg. Lief x, Sign. 361-400. Leipzig : 8vo, pp. 2929-3248.
486. TETENS, H. Resultate der anatomischen Untersuchung eines lateralen Zwitter von *Smerinthus populi* (L.), nebst einiger daran geknüpften allgemeinen Betrachtungen. B. E. Z. xxxvi, pp. 457-466, 1 pl.
487. THOMSON, J. A. Outlines of Zoology. Edinburgh : 8vo, xiv & 640 pp., 32 full-page illustrs.
488. —. The Study of Animal Life. London : 8vo, xii & 375 pp., figg.  
— [See also GEDDES & THOMSON (192).]
489. THOMSON, J. A., & WYLD, N. The Facts of Sex in Relation to Metabolism: a Review of some Recent Theories. P. R. Phys. Soc. Edinb. xi, pp. 249-282.
490. TICHOMIROV, A. Signification des recherches embryologiques pour la classification. Congrès. Internat. Zool. ii, part i, pp. 32-48.
491. TODARO, F. Sulla struttura, la maturazione, e la fecondazione dell' ovo della *Seps chalcides*. Atti [Rend.] Acc. Rom. vii, pp. 445-449. Cf. Monit. Zool. Ital. iii, pp. 6-8.
492. \*TORALBO, L. Contributo alla conoscenza del nucleo cellulare nelle glandole della pelle degli anfi. Month. Int. J. Anat. Hist. ix, pp. 89-94, 2 pls.
493. \*TSCHEMEN, J. A. Darwinismus, eine Untersuchung der Darwin'schen Theorie der Abstammung des Menschen. [Russian.] Odessa: 8vo, 508 pp.

494. TYLDEN, H. J. The Bearing of Pathology upon the Doctrine of the Transmission of Acquired Characters. *Nature*, xlv, pp. 302-305.
496. URECH, F. Beobachtungen über die zeitliche Succession des Auftreten der Farbenfelder auf den Puppenflügelchen von *Pieris brassicae*. *Zool. Anz.* xv, pp. 284-290 & 293-299.
497. —. Ueber Eigenschaften der Schuppenpigmente einiger Lepidopteren-species. *T. c.* pp. 299-306.
498. VARIGNY, H. DE. Experimental Evolution. Lectures delivered in the Summer School of Art and Science, University Hall, Edinburgh. London : 8vo, ix & 271 pp.
499. —. Les espèces qui s'en vont [after Lucas]. *Rev. Sci.* xlix, pp. 560-562.
500. VARIOT, G., & BEZANÇON, P. Indépendance de la spermatogénèse et de la sécrétion testiculaire proprement dits. *Bull. Soc. Anthropol.* Paris, iii, pp. 282-288.
501. — & —. De la spermatogénèse. *T. c.* pp. 289-294.
502. \* — & —. Influence de la sécrétion testiculaire sur le développement organique. Indépendance de cette fonction et de la spermatogénèse dans certains cas. *Gaz. med. Paris*, lxiii, pp. 229-232.
503. VAS, F. Studien über den Bau des Chromatins in der sympathischen Ganglienzelle. *Arch. mikr. Anat.* xl, pp. 375-389, 1 pl.
504. VERHOEFF, C. Beiträge zur Biologie der Hymenopteren. *Zool. Jahrb.* vi (Abth. Syst.), pp. 680-754, 2 pls.
505. —. Neue und wenig bekannte Gesetze aus der Hymenopteren-Biologie. *Zool. Anz.* xv, pp. 362-370.
506. —. Biologische Aphorismen über einige Hymenopteren, Dipteren, und Coleopteren. *Verh. Ver. Rheinl.* xlviii, pp. 1-80, 3 pls.
507. VERWORN, M. Die Bewegung der lebenden Substanz. Eine vergleichend physiologische Untersuchung der Contractionserscheinungen. *Jena* : 8vo, 103 pp., 19 figg.
508. —. Die physiologische Bedeutung des Zellkerns. *Arch. Ges. Phys.* li, pp. 1-118, 6 pls.
509. —. Ueber die Fähigkeit der Zelle, activ ihr specifisches Gewicht zu verändern. *Op. cit.* liii, pp. 140-155, 1 fig.  
VETTER, B. [See ROMANES (434).]
510. VIALLETON, L. La division indirecte des cellules. *Rev. Sci.* xlix, pp. 678-687, 12 figg.
511. \* —. La spermatogénèse chez les mammifères et chez l'homme. *Lyon Médicale.* lxix, pp. 383-396.
512. VIGUIER, C. L'héliotropisme des Nauplius. *C.R.* cxiv, pp. 1489-1492.

513. VIRCHOW, H. Das Dotter-Organ. Arch. mikr. Anat. xl, pp. 39-101, 2 pls.
514. —. Das Dotterorgan der Wirbelthiere. Z. wiss. Zool. liii, Suppl., pp. 161-206, 1 pl.
515. —. Dotterzellen und Dotterfurchung bei Wirbeltieren. Verh. Anat. Ges. vi, 1892, pp. 209-219.
516. VIRCHOW, R. Transformation and Descent. J. Bacterol. Pathol. i, pp. 1-12.
517. VOELTZKOW, A. On the Oviposition and Embryonic Development of the Crocodile. Ann. N. H. ix, pp. 66-72.
518. VOGT, C., & YUNG, E. Traité d'anatomie comparée pratique. Paris : 8vo, vol. 2, pp. 513-640, illustr.
519. \*VOGT, J. G. Die Menschwerdung. Die Entwicklung des Menschen aus der Hauptreihe der Primaten und die Begründung der weiten Kluft zwischen Thier und Mensch, abschliessend mit der vollständigen Lösung des Willensproblems, &c. Leipzig : 8vo, iv & 393 pp., illustr.
520. \*STAATS VON WACQUANT-GEUZELLES. Weitervererbung von Albinismus. Zool. Gart. xxxiii, pp. 356-366.
521. WAGNER, F. v. General Observations on Fission and Gemination in the Animal Kingdom. (Trans.) Ann. N. H. x, pp. 23-54.
522. WAGNER, J. Ueberblick über den gegenwärtigen Stand der Frage von dem Wesen und der Bedeutung der Befruchtung (Russian). Rev. Sci. Nat. St. Pétersb. iii, pp. 88-91 & 145-155.
523. WAITE, E. R. Albinos and White Varieties. Zool. xvi, p. 25.
524. WALLACE, A. RUSSEL. Island Life ; or the Phenomena and Causes of Insular Faunas and Floras, including a Revision and Attempted Solution of the problem of Geological Climates. 2nd and Revised Edition. London : 8vo, xx & 563 pp., 26 maps and illustr. Cf. Nature, xlvi, p. 56.
525. —. Note on Sexual Selection. Nat. Sci. i, pp. 749 & 750.
526. WARNER, F. Co-ordination of Cellular Growth and Action by Physical Forces. Rep. Brit. Ass. 1892, pp. 761 & 762.
527. WASMANN, E. Die internationalen Beziehungen von *Lomechusa strumosa*. Biol. Centralbl. xii, pp. 584-599 & 638-669.  
Re Instinct.
528. —. Die zusammengesetzten Nester und gemischten Kolonien der Ameisen. Ein Beitrag zur Biologie, Psychologie, und Entwicklungsgeschichte der Ameisengesellschaften. Münster-i.-w. : 8vo, viii & 264 pp., 2 pls., 16 figg.
529. WATASE, S. The Origin of the Sertoli's Cell (Spermatoblasts). Am. Nat. xxvi, pp. 442-444.

530. [WATASE, S.] On the Significance of Spermatogenesis. *Am. Nat.* xxvi, pp. 624-626.
531. —. On the Phenomena of Sex-differentiation. *J. Morph.* vi, pp. 481-493.
532. WATERS, B. H. Primitive Segmentation of the Vertebrate Brain. *Q. J. Micr. Sci.* xxxiii, pp. 457-475, 1 pl.
533. WEBBER, H. J. Phenomena and Development of Fecundation. *Am. Nat.* xxvi, pp. 103-111 & 287-310.
534. WEIR, J. JENNER. Albinism in Birds and Mammals. *Zool.* xvi, pp. 141-143.
535. WEISMANN, A. Das Keimplasma. Eine Theorie der Vererbung. Jena : 8vo, xviii & 628 pp., 24 figg.
536. —. Die Continuität des Keimplasmas als Grundlage einer Theorie der Vererbung. 2 Aufl. Jena : 8vo, 112 pp.
537. —. Aufsätze über Vererbung und verwandte biologische Fragen. Jena : 8vo, vii & 848 pp., 19 figg.
538. —. Essays upon Heredity and Kindred Biological Problems. Vol. 2. Edited by E. B. Poulton & A. E. Shipley. London : 8vo, 226 pp.
539. WELDON, W. F. R. On certain Correlated Varieties in *Crangon vulgaris*. *P. R. Soc.* li, pp. 2-21.
540. WERNER, F. Untersuchungen über die Zeichnung der Wirbelthiere. *Zool. Jahrb. (Abth. Syst.)* vi, pp. 155-229, 5 pls.
541. —. Zoologische Miscellen. I. Konvergenz oder Verwandtschaft. II. Noch etwas über die Zeichnung der Tiere. III. Die epitrichial Skulptur der Schlangenepidermis. *Biol. Centralbl.* xii, pp. 268-280.
542. WILSON, E. B. On Multiple and Partial Development in *Amphioxus*. *Anat. Anz.* pp. 732-740, 11 figg.
543. WIEDERSHEIM, R. Das Gliedmassenskelet der Wirbelthiere mit besonderer Berücksichtigung des Schulter- und Beckengürtels bei Fischen, Amphibien, und Reptilien. Jena : text 8vo, v & 266 pp., 40 figg., atlas of 17 pls.
544. WILDEMAN, E. DE. Les recherches récentes sur la structure cellulaire et la division du noyau. *Neptunia*, ii, pp. 1400-1410 & 1411-1444.
545. —. Les recherches récentes sur la structure cellulaire. *Bull. Soc. Belg. Micr.* xviii, pp. 16-24.
546. WINKLER, F. Zur Frage nach dem Ursprung des Pigments. *MT. embr. Inst. Wien*, xii, pp. 64-80.
547. \* —. Zur Frage nach dem Ursprunge des Pigments. *Wien. Med. Wochenschr.* xlii, pp. 1153-1155, 1193-1196, 1230-1232, & 1260-1262.

548. WUNDT, W. Vorlesungen über die Menschen- und Thier-seele. 2 umgearb. Aufl. Hamburg and Leipzig : 8vo, xii & 495 pp.
549. WURM, W. Ueber die Farbe der Vogelfedern. *JH. Ver. Württ.* xlviii, pp. 41-46.
- WYLD, N. [See THOMSON & WYLD (489).]
550. YUNG, E. De l'influence des lumières colorées sur le développement des animaux. *C.R.* cxv, pp. 620 & 621.
551. —. Sur l'existence d'un soi-disant sens de direction ou d'orientation chez l'homme et les animaux. *C.R. Soc. helv.* lxxiv, pp. 49-51.
552. \*——. Orientirungssinn bei Menschen und Thieren. *Nat. Rundschau*, vii, pp. 195 & 196.
- . [See also VOGT & YUNG (518).]
553. \*ZACHARIAS, O. Katechismus des Darwinismus. Leipzig : 8vo, viii & 176 pp., 30 figg., 1 pl., 1 portrait.
554. ZANDER, R. Ueber den gegenwärtigen Stand der Lehre von der Zelltheilung. *Biol. Centralbl.* xii, pp. 281-309.
555. ZIEGLER, H. E. Ueber die embryonale Anlage des Blutes bei den Wirbeltieren. *Verh. deuts. Z. Ges.* ii, pp. 18-30.
556. —. Ueber den Begriff des Instincts. *Op. cit.* 1892, pp. 122-136.
557. ZIEGLER, J. Tierphänologische Beobachtungen zu Frankfurt am Main. *Ber. Senck. Ges.* 1892, pp. 47-69.
558. ZIMMERMANN, K. W. Pigmentzellen mit Attraktionsphären. *Verh. Anat. Ges.* vi (1892), pp. 274 & 275.
559. ZITTEL, K. A. VON. Handbuch der Paläontologie. 1 Abt. Paläozoologie, Bd. iv, Lief. 1, *Mammalia*. München and Leipzig : 8vo, 1-304 pp., 245 figg.
560. ZOJA, L. & R. Intorno al plastiduli fucsinophili (bioplasti dell' Altmann). *Mem. Ist. Lomb.* vii, pp. 237-270, 2 pls.
561. \*——. Sur les plastidules fuchsinophiles. Bioplastes d'Altmann (conclusion). *J. Microgr.* xvi, pp. 13-15.
562. ZOPF, W. Beiträge zur Physiologie und Morphologie Niederer-Organismen. 1 Heft. Leipzig : 8vo, iv & 97 pp., 3 pls.
563. \*ZSCHOKKE, E. Weitere Untersuchungen über das Verhältniß der Knochenbildung zur Statik und Mechanik des Vertebraten-Skelettes. Zürich : 4to, 102 pp., 11 col. pls., illustrs.

## II.—SUBJECT-INDEX.

The object of this part of the RECORD is to bring together those contributions which have a direct bearing on the larger biological problems. Such of these papers as are based on special examples are also included in the Special Records ; these latter, moreover, include many observations on variation, mimicry, habits, &c., that cannot be noticed in this General Record.

- A. Text-Books, Essays, and General, p. 36.
- B. Cell and Protoplasm, p. 42.
- C. Oogenesis, Spermatogenesis, Fertilisation, p. 44.
- D. Sex, Reproduction, and Heredity, p. 46.
- E. Evolution, p. 49.

## A. TEXT-BOOKS, ESSAYS, AND GENERAL.

## (1) TEXT-BOOKS, &amp;c.

Text-books : BONNIER (63), CAMPBELL (89), CARLET (90), ELLENBERGER (148), ENGEL (153), GIROD (204), GRIFFITHS (212), HERTWIG, O. (254), HERTWIG, R. (258), HURST (341), LABORDE (315), LAMEERE (316), LANG (318), MARSHALL (341), MINOT (355), PERRIER, E. (393), PERRIER, R. (392), RAWITZ (420), RETTERER (423), RITZEMA-BOS (327), ROULE (436), SCHOFIELD (456A), SUSSDORF (483), THOMSON (487), VOGT & YUNG (518), ZITTEL (559).

Other books of a general nature : BATES (32), BREHM (73), BRONN (75), DISTANT (125), HUDSON (271), HUTCHINSON (274), KIPLING (294), MOSELEY (367), NEUMANN (374), THOMSON (488).

## (2) NOMENCLATURE.

Orientation of the body : SCHULZE (460) proposes a complete series of unambiguous terms. All not quite irregular bodies may be grouped according as their middle is defined by a point, a line, or a plane,—synstigma, syngamma, sympeda. Around the centre is central or proximal, the direction leading towards this is centrad or proximad, the position is centran or proximan. So distal, distad, distan ; axial, axiad, axian. The two ends of the principal axis are rostral and caudal. The two ends of the dorso-ventral axis are dorsal and ventral. The two ends of the perilateral (isopolar) axis are dextral and sinistral. Related terms end in *n* and in *d* as above. The median plane separates dextral and sinistral, the frontal plane separates ventral and dorsal, the transversal plane separates caudal and rostral.

The terms proximal and distal ; FRORIEP (179).

Terms of auxology : BUCKMAN & BATHER (79) suggest the following terminology :—

## ONTOGENY.

Anaplasia .	{ Embryonic. Brepheic. Neanic.
Metaplasia .	{ Ephebic.
Cataplasia .	{ Gerontic. Catabatic. Hypostrophe.

## PHYLOGENY.

Same terms, with prefix "phyl."	{ Epacme.  Acme.  Paracme.
--	--

Zoological nomenclature : BLANCHARD (58, 59), GIRARD (203), HERDMAN (250), TICHOMIROW (490).

## (3) TAXONOMIC.

KENNEL (293) sees seven classes or cycles of animals, viz. :—

I. *Protozoa*.

II. *Metazoa*.

1. *Radiata* . { *Spongiæ*.  
*Cœlentera*.  
*Echinoderma*.

2. *Bilateralis* . { *Insegmentata*.  
*Segmentata*.

or, a. *Animaux à gastrula* { *Insegmentata*.  
b. *Animaux à trochosphœra* { *Segmentata*.

CHOLODKOWSKY (95) gives the following arrangement :—

*Metazoa* . { *Enterocœla* : incl. *Brachiopoda*, *Echinoderma*, *Chaetognatha*, *Chordata*, *Enteropneusta*.  
*Genitocœla* : incl. all *Cœlomata* not *Enterocœla*, in which the cœlome is said to arise in the compact mass of mesoderm, which corresponds to the sexual tissue of *Platodes*.  
*Acœla* : incl. *Cœlentera*, *Porifera*, *Platodes*, *Nemertini*, *Orthonectida*, and *Dicyemida*.

Embryology and classification : TICHOMIROW (490).

Affinities of *Vertebrata* ; ROULE (437).—Affinities between *Arthropoda* and *Vertebrata* ; BORDAGE (64).—Affinities of *Vertebrata* ; ROULE (437).

## (4) DISTRIBUTION.

AGASSIZ (2), APSTEIN (18, 19), BLES (69A), BRANDT (71), CLARKE (97), FIELD (165), FISCHER-SIGWART (166), IMHOF (277-282), KELLER (291), KRÜMMEL (312), MARENZELLER (338), MÖBIUS (357), SCHÜTT (461), SIMROTH (472), STOLL (478), WALLACE (524).

## (5) MORPHOLOGICAL.

General questions of theoretical morphology ; DRIESCH (130-132).—Suggested correction of the prevalent conception of homology ; BATESON (33).

Principles of skeleton-making in Rhizopods, Sponges, and Echinoderms ; DREYER (128, 129).—Architecture of skeletal substances ; SÖLGER (475).

Mesoderm and Metamerism ; PERENYI (391), RABL (410, 411).—Metamerism of *Enterocœla* due to ramifications of the gut ; of *Genitocœla* due to linear budding ; CHOŁODKOWSKY (95).—Metamerism of *Vertebrata* ; BURCKHARDT (85): of Vertebrate head ; HERRICK (252).—Primitive segmentation of the Vertebrate brain ; WATERS (532).—Spiral modification of metamerism ; MORGAN (364).

Relation of size of brain to size of body ; LATASTE (320).

Vertebrate nervous system : Brain, EDINGER, *Selachii*, *Amphibia* (141) ; KÖPPEN, Lizard (303) ; SCERVINI, General (449) ; RETZIUS, Cerebellum, sympathetic ganglia (424) ; BURCKHARDT, Phyletic history of the brain (85).—Cranial nerves ; FRORIEP (178), KUPFFER (314).—Parietal eye ; BERANECK (47).

Pituitary body ; SAINT-REMY (448).

Eye ; MATTHIESEN (343).

Vertebrate ear ; AYERS (25).

Epiglottis ; GEGENBAUER (193).

Pectoral and pelvic girdles, especially of Fishes, Amphibians, and Reptiles ; WIEDERSHEIM (543).

Urino-genital system ; SEMON (464).

Morphology of Cyclopian monsters ; EMERY (151).

## (6) PHYSIOLOGICAL.

Physiology of the *Invertebrata* ; GRIFFITHS (212).—Comparative physiology of domestic animals ; ELLENBERGER (148).—Chemical basis of animal body ; LEA (322).

Comparative pathology : "Tracing the significance of amœboid cells, or phagocytes, from the *Protozoa* upwards, through various groups of animals to the higher Vertebrates" ; METSCHNIKOFF (347).—Struggle for existence among the parts of the organism ; METSCHNIKOFF (348).

Theory of vital movement : In the expansion of a pseudopodium there must be local lessening of the surface tension ; this diminution of the surface tension depends on the chemical affinity of the protoplasm for oxygen ; the plasmic particles are drawn within the operative sphere of the oxygen molecules in the medium, and, being satisfied, remain indifferent, or are shoved aside by their successors. Contraction is an expression of increased surface tension ; this increase occurs when the complex plasmic particles break up on being stimulated ; the disrupted particles are drawn to the centre of the unit mass ; the reason of this is in the nuclear substance, for which the exhausted protoplasm now exhibits chemotropism. Application of these ideas to *Vorticella*, and to muscle ; VERWORN (507).

Origin of striped muscle ; EIMER (145), HAYCRAFT (237).

Muscle and nerve ; MCKENDRICK (332).

Movement of animals studied by photographs ; MAREY (339), PASSY (389).

General physiology of the cell ; HERTWIG (256).—Comparison of "microscopic foams" with protoplasm ; BÜTSCHLI (83).

Studies on growth ; CORNEVIN (104).

Life and death ; SABATIER (446).

Death ; MITCHELL (356).—La synthèse des êtres vivants ; SABATIER (447).

Residual life ; GAUTIER & LANDI (188-191).

Nervous system ; HORSLEY (268).

Digestion and absorption (*Artemia*, &c.) ; FRENZEL (175, 176).

Comparative physiology of respiration ; GAGE (182, 183).

Blood of the *Invertebrata* ; GRIFFITHS (213, 214).—Hæmocyanin ; FRÉDÉRICQ (173), CUÉNOT (114), HEIM (241).

Iron in the animal body ; SCHMUL (454), SCHNEIDER (456) [*cf.* SIMROTH, *Die Entstehung der Landthiere*, 1891].

Autotomy of shore-crab ; FRÉDÉRICQ (174).—Autotomy of Spiders and Pycnogonids ; GAUBERT (185, 186).

## (7) ANIMAL INTELLIGENCE AND INSTINCT.

AAS (1).—Limits of animal intelligence ; DIXON (127), MIVART (127), MORGAN (127, 362).—Relation of human and animal "Seele" ; BIEGELEBEN (52).—Mental evolution in man and animals ; BODINGTON (60).—Theory of sensation ; DUBOIS (134).—History of instinct of *Pompilidæ* ; FERTON (162).—Societies of Termites ; GRASSI (208).—Numerous observations ; HUDSON, W. H. (271), and HUDSON, G. V. (272).—Estimate of animal intelligence ; JACQUART (284).—Parental care ; KRÄPELIN (309).—Analysis of instinct of *Ammophila* ; MARCHAL (337).—Intelligence and instinct ; NADAILLAC (370).—Development of intellect ; SCHNEIDER (455).—Psychology of societies of Ants ; WASMANN (528).

—International relations between *Lomechusa* and Ants ; WASMANN (527).—Sense of direction ; YUNG (551).—Conception of instinct ; ZIEGLER (556).—Revised edition of lectures ; WUNDT (548).

## (8) EMBRYOLOGICAL.

Introduction to study of embryology ; ROULE (436).

Text-Books : HERTWIG (254), KORSCHOLT & HEIDER (306), MINOT (355).

Old and new conceptions of development ; HERTWIG (257).—Das biologische Grundgesetz ; ARNDT (21).—On a supposed law of Metazoan development : Alternation of generations seems to underlie Metazoan development. The birth of the Nemertine on the Pilidium, that of the Echinoderm on the Pluteus, may be rather normal than exceptional. A larval stage lurks in all cases, but it may be represented merely by a blastoderm upon a yolk-sac, or by less than that. But the larva never disappears, however much it may undergo degeneration. In Mammals, where it is thoroughly parasitic, it is most reduced ; BEARD (37, 38). See also ASSHETON (37).

Theory of germinal layers ; HOUSSAY (270) :—

Ectoderm	{ Epiblast	
	{ Neuroblast	
Endoderm	{ Mesoblast	
	{ Protohypoblast	{ Parablast
		{ Deutophypoblast { Metablast
		{ Hypoblast

Theory of mesoderm and metamerism ; CHOLODKOVSKY (95).

Theory of mesoderm ; RABL (410).

Homology of germinal layers : gastrulation in *Vertebrata* ; REPIACHOFF (422).

Development of optic nerve of Vertebrates : The optic stalk has no share in forming the nervous parts of the eye ; the nerve-fibres grow inwards from the retina towards and into the brain ; ASSHETON (23).

Histogenesis of nerve ; BEARD (36), and HERRICK (253) : *contra*, BEARD and DOHRN ; KÖLLIKER (302).

Nerve-cells and nerve-fibres : All nerve-fibres are direct processes of nerve cells ; they are not formed by the concrescence of rows of cells ; KÖLLIKER (301).

Transient ganglion cells ; BEARD (39).—Cerebro-spinal ganglia : at a certain stage in the development of Amniota all the nerve cells of the spinal ganglia are opposito-bipolar (a form permanent in fishes), but they become unipolar. The spinal ganglia of Vertebrates are the origins of the sensory part of all the spinal nerves. The ganglia of 5th, 9th,

and 10th cranial nerves are comparable to spinal ganglia : GEHUCHTEN (195, 196).

Wirbel and Urwirbel ; EBNER (140).

Blood corpuscles ; STRICHT (480).—Report on state of knowledge as to the history of blood corpuscles ; OPPEL (384).—Origin of the blood in Vertebrates ; ZIEGLER (555).

Yolk-organ of Vertebrates ; VIRCHOW (513-515).

Physiological factors determining metamorphoses : "Theory of metamorphosis as due to asphyxia" ; BATAILLON (30).

Experimental embryology : General accounts of recent work ; ANDREWS (9), KORSCHOLT (305), ROUX (438).—Experiments on Frog ova : a loss of even one-sixth of the substance of the ovum produced only circumscribed local defects or disturbances. Puncturing one of the two first segmentation cells resulted in a typical half-morula, half-gastrula, half-embryo. Right and left half-embryos, and also anterior and posterior half-embryos were produced. By "post-generation" the half-embryo may form a whole by vitalising the injured half-egg, which has been lying passive, while the uninjured half has been developing ; but Roux has also succeeded in rearing an entire frog-embryo from half an egg, without any co-operation on the part of the other injured half ; ROUX (305).

Influence of electric current on ova, and their segmentation ; ROUX (306).

Experiments on ova of Echinoids : With increased temperature the ova of sea-urchins [*Sphaerechinus*] formed double blastulæ, gastrulæ, and even Plutei. The mode of segmentation is also modified. If one cell of the 4-celled stage be shaken off or destroyed, the remainder may form a normal Pluteus ; and an isolated cell may form a blastula, or even a Pluteus. Pressure modifies very considerably the course of segmentation, but yet after removal of the disturbing influence normal larvæ result ; DRIESCH (130).—The addition of various salts (of potassium, lithium, &c.) to sea-water delayed the formation of the larval skeleton, inhibited the characteristic Pluteus outgrowths, or resulted in the production of altogether abnormal larvæ. It seems that the influence on the developing ova is not directly chemical, but is due to the altered osmotic pressure of the sea-water ; HERBST (249).

Artificial stimulus resulting in the production of an egg-membrane : Unfertilised ova of sea-urchins placed in sea-water and shaken up with chloroform, benzol, toluol, &c., form a protective membrane similar to that which appears after the entrance of a spermatozoon. Even on fertilised ova, robbed of their normal membrane, a second membrane was formed in response to artificial stimulus ; HERBST (249).

Multiple and partial development of *Amphioxus* ova : From the cells of the 2-celled stage shaken apart, two embryos of half-size result ; similarly from the 4-celled stage four embryos of quarter-size were produced. Incomplete separation of the cells resulted in various forms of connected dwarf-embryos. A unit from the 8-celled stage does not, however, form an embryo. According to Wilson this inability is due to

qualitative limitations. The segmentation of isolated blastomere of the 2- or 4-celled stage agrees exactly with that of the entire ovum ; WILSON (542).

Incubation during continuous rotation ; DARESTE (118).—Influence of light on orientation of chick embryo ; BLANC (57).—Influence of coloured light on development ; YUNG (550).

*Urmund* and *Spina bifida* : Study of abnormalities which occur in the development of Frog ova, in consequence of over-ripeness and polyspermy. The segmentation may be strangely irregular, large parts of the yolk may remain undivided, and the formation of the gastrula may be so disturbed that the *Urmund* remains partially or wholly unclosed. Morphological interpretations of resulting abnormalities ; HERTWIG (255).

The terms of auxology ; BUCKMAN & BATHER (79).

## B. CELL AND PROTOPLASM.

General treatises and essays on the Cell : HERTWIG (256), CHATIN (93), HEIDENHAIN (239), SOLGER (474), FRANCKE (171).

Physiology of the Cell and Protoplasm : Theory of protoplasmic movements ; VERWORN (507).—The power cells have of altering their specific gravity ; VERWORN (509).—Chemical irritability of protoplasm ; ROEMER (429).—Physiological elements of protoplasm ; DETMER (123).—Cell physiology ; LILIENFELD & MONTI (325).

Protoplasm : General considerations ; BEALE (35).—Activities of protoplasm compared with the phenomena seen in observing fine foams ; BÜTSCHLI (83). The author's general conclusion is that protoplasm has a frothy or foam-like structure, and that the physical conditions observable in the drops of emulsion do, *mutatis mutandis*, help us towards an understanding of the streaming movements and changes of shape in protoplasmic units. Cytoplasm and nucleoplasm have a foam-like structure, and consist of a honeycomb-like arrangement of lamellæ, with fluid or enchylema in the interspaces. The structure may be mimicked by means of fine emulsions or foams. Appearances of fibrillation, reticulation, nodal thickenings, &c., are readily produced artificially. In various conditions amoeboid streaming movements occur.

Structure of Cytoplasm : ALTMANN (6, 7), BÜTSCHLI (83), CRATO (108), DANNEHL (117), FAYOD (161), FLEMMING (168), GUIGNARD (217, 218), KROMAYER (311), PRENANT (405-408).

Nucleus : Nucleus and Protoplasm ; HEIDENHAIN (239).—Physiological import of nucleus ; VERWORN (508) ; only through its metabolism does it influence the life of the cell.

Structure and Functions of Nucleus ; MANN (335). The nuclear chromatin segments are organs for the transformation of simple into more complex compounds. The nucleolus is a storehouse of elaborated material. The achromatin is the essential plasma. Two special seats of the achromatin substance are the archoplasma and the endo-nucleolar substance.—

Experiments on function of nucleus; CLARK (99).—Structure of nucleus; ALTMANN (7).—Structure of resting nucleus; KRASSER (310).

Rabl's doctrine of the nuclear segments; HARTOG (234).

Affinity of nucleus for iron-staining chromatin; GILSON (201).

Nuclei in glands of Amphibian skin; TORALBO (492).

Attractive spheres and centrosomata; BÜRGER (82), BÜTSCHLI (84), FICK (163), HANSEMAN (233), HEIDENHAIN (238), LEBRUN (323), MOORE (360), NICOLAS (376), STRICHT (481), ZIMMERMANN (558).

Cell-division: Present state of knowledge; ZANDER (554).—Rôle of archoplasm; MOORE (360).—Indirect division, general account; VIALLETON (510).—Direct division; NICOLAS (377).—Division of nucleus and of cell in epithelial tumours; BORREL (66).—Nuclear fragmentation followed by the division of the cell; BUSCALIONI (86).—Amitotic cell-division; FRENZEL (177).—Heterotypical nuclear division in origin of reproductive elements; HÆCKER (226).—Nuclear division in formation of mesoderm and endoderm in *Cyclops*; HÆCKER (227).—Asymmetrical mitosis; HANSEMAN (232).—Amitosis in embryonal envelopes of Scorpion; JOHNSON (289).—EISMOND (147).

The fate of the central spindle in Karyokinesis; KOSTANECKI (307).

Nuclear division in giant cells; KOSTANECKI (308).

Terminology, for Aster, Dyaster, &c., it seems desirable to substitute Astroid, Dyastroid, &c.; FLEMMING (167).

Flemming's "intermediate body" in the seminal cells of *Scelopendra* and *Lithobius*; PRENANT (404).—Origin of achromatic spindle; PRENANT (408).

Primitive fibrils; APÁTHY (14). The primitive fibrils of smooth muscle and of nerve have been hitherto overlooked; the interfibrillar spaces have been seen, not the fibrils. Contractile substance and conducting substance are alike intracellular plasmic products, and consist of primitive fibrils and of intrafibrillar substance.—Origin of muscle fibres; EIMER (145), HAYCRAFT (237).—Muscle and nerve; ROHDE (430, 431).

Cell-membrane; BUSCALIONI (87).—The basilar membrane; CHATIN (94).

Continuity between cells; OLIVIER (382).

Biology of *Protozoa*; OSBORN (387).

Histology of nervous system; RETZIUS (424), RONDE (430, 431), VAS (503).

Chemical properties of reticular tissue; SIEGFRIED (468).

Schlummerzellen und Gewebsbildung; EBERTH (138), GRAWITZ (210), SCHMIDT (453).

Miscellaneous; MELTZER (345).

## C. OOGENESIS, SPERMATOGENESIS, FERTILISATION.

General biological considerations ; WEISMANN (535), HENKING (245).

## (1) OOGENESIS, MATURATION, &amp;c.

Embryological classification of ova ; HENNEGUY (247).—Comparison of male and female reproductive cells ; PRENANT (403).—Heterotypical nuclear division in oogenesis and spermatogenesis ; HÆCKER (226).—Graafian follicle, history of ; SCHOTTLÄNDER (457).

Yolk-cells and yolk-segmentation ; VIRCHOW (515).—Nutritive importance of the yolk-sac ; ROBINSON (428).

Yolk-organ of Vertebrates ; VIRCHOW (513–515).—Binucleate ovum of rat ; BLANC (56).

Ovum of reptiles ; ARNOLD (32).—Oogenesis in *Seps chalcides* ; GIACOMINI (198), MINGAZZINI (354), TODARO (491).

Maturation in ovum of Trout ; BLANC (54).—Ovary and ovum of *Gobius minutus* ; GUITEL (221).—Ova of Turbot ; HOLT (265).—Oogenesis, &c., in Teleosteans ; FUSARI (180).—Oogenesis in *Teleostei* : Ovarian ova of Dab, Hake, &c. ; in all ripening ovaries, ova for three consecutive spawning periods are present ; CALDERWOOD (88).—Abnormal karyomitosis in Trout ovum ; STRACHLEY (479).—Ovarian ovum of *Selachii* : Complex alterations of mass and form exhibited by the chromosomata. It can hardly be a "*Keimplasma*" which undergoes such alterations of mass ; it must be an involved somatic plasma. Proposed theory of mutual fertilisation, or amphimixis of chromosomata ; RÜCKERT (440, 442).

History of the germ-cells in *Insecta* : An important treatise on oogenesis, maturation, and fertilisation in *Insecta*. Discussion of egg-envelopes, the formation of polar bodies, the "thelyid" (an achromatic polar body), &c. The first and second divisions of the spermatocytes are comparable to the divisions which form polar bodies. Polyspermy common. The arrhenoid of the spermatozoon comparable to the thelyid. Comparison of the processes of fertilisation in *Insects*, *Protozoa*, and *Angiosperms* ; HENKING (245).—Oogenesis in *Cyclops* and *Canthocamptus* ; HÆCKER (225).—History of ovum in *Branchipus grubii* ; BRAUER (72).

Early development of *Cirripedia*, maturation, fertilisation, &c. ; GROOM (216).—Oogenesis in *Diaptomus* ; ISCHIKAWA (283).—Centrosomata in ovum of *Ascaris megalocephala* ; LEBRUN (323).—Vitelline nucleus of ova of *Trematoda* ; MONTICELLI (358), and CRETY (109).—In *Echinoderms* ; CUÉNOT (113).

## (2) FERTILISATION.

Fertilisation of ova in *Echinoderms*, *Selachii*, *Reptilia* ; EBERTH (137) ; in *Reptiles* ; OPPEL (383) ; in *Axolotl* ; FICK (164). The middle portion of the spermatozoon gives rise to an attractive sphere, which seems to divide ; FICK (164).

Immature ova of *Triton teniatus*; BORN (65): Trout; BÖHM (61). Trout: In fertilisation, the two pronuclei fuse, and so do their solar centres; BLANC (54, 55).

Invertebrates; PICTET (396).—Insects; HENKING (245).—*Diaptomus*: The primary sperm-cells and the primitive ova have eight chromatin elements; the pronuclei have four; there is a reducing division; in the first two segmentation-spheres there are likewise eight chromosomes; ISCHIKAWA (283).

Parthenogenesis (?) in Frog: of about 1500 unfertilised ova (of *Rana fusca*) about 100 exhibited irregular segmentation furrows; DEHNER (122).

General problems of fertilisation; HERTWIG (259), LWOFF (329), MÜLLER (369), WAGNER (522), WEBBER (533).

Comparison of the process of fertilisation in plants and in animals; GUIGNARD (219).

The protective membrane formed after fertilisation; HERBST (249) [see Embryology].

Polyspermy: In *Selachii*: Most, if not all, of the merocyte nuclei (vitelline or parablast nuclei) in the ova of the Selachians are modified male pronuclei; polyspermy appears to be normal; RÜCKERT (441).—In Reptiles: Accessory sperm-nuclei in *Anguis*, *Tropidonotus*, *Lacerta*; polyspermy appears to be frequent; OPPEL (383).—In Axolotl: Sometimes as many as nine spermatozoa in ovum; FICK (164).—In Insects; HENKING (245).

Results of over-fertilisation: In the over-fertilised ovum opposing factors conflict; on the one hand there are forces tending to development and incited by the fertilisation, on the other hand there are forces of an inhibiting and disturbing nature, due to the injury the ovum has sustained by over maturation, or by other abnormal conditions operative before fertilisation; HERTWIG (255) [see also Embryology].

### (3) SPERMATOGENESIS.

General significance of spermatogenesis; WATASE (530).—Comparison of spermatogenesis and oogenesis; HENKING (245).—Morphological comparison of ovary and testis; PRENANT (403).—Heterotypical nuclear division in oogenesis and spermatogenesis; HECKER (226).—Especially details in regard to reduction-divisions in *Gryllotalpa vulgaris*; RATH (419).

Histology of testis; GERMANO (197).—Distinction between spermatogenesis and testicular secretion; VARIOT & BEZANÇON (500-502).—Histology of spermatozoon; BALLOWITZ (27).

Spermatogenesis: in various *Invertebrates*; PICTET (396): in *Trematoda*; MONTICELLI (359): in *Echinoderms*; CUÉNOT (113): in *Diaptomus*; ISCHIKAWA (283): in *Scolopendra*, *Lithobius*; PRENANT

(403-408): in Frog; BERTACCHINI (50): in Salamander; NICOLAS (376): in *Sauropsida*; BENDA (45): in Mammals and Man; BARDELEBEN (29), VIALLETON (511).

Origin of Sertoli's cells; WATASE (529).

Spermine, &c.; BROWN-SEQUARD (77), DUCLAUX (135), HÉRICOURT (251), PöHL (398, 399).

## D. SEX, REPRODUCTION, HEREDITY.

### (1) SEX AND REPRODUCTION.

General considerations; WEISMANN (535), HENKING (245).—Summary of recent observations and theories; WEBBER (533).—Reproduction among plants and animals; NEVIANI (375).—Life and death; SABATIER (446).—Origin of contrast between somatic and reproductive cells in *Ascaris*; BOVERI (68).

Evolution of sex: The male organism inclines to greater activity, the female to greater passivity, a conclusion similar to that maintained by Geddes and Thomson in "The Evolution of Sex;" FRANCKEN (172).

Sex-differentiation: Important to distinguish (*a*) the phenomena of heredity, or the mixture of the parental characteristics in the offspring; and (*b*) the phenomena of sexual differentiation in the organism, in which the parental characters have already been mixed. The micro-chemical reaction of the sperm-nucleus, which is entirely different from that of the ovum-nucleus during the earlier stages of its existence, becomes essentially like that of the female pronucleus at the moment of fecundation. The phenomenon of sex-differentiation is one with that of irritability, and is the most pronounced of all the phenomena of protoplasmic irritability, because the stimulus acts at an early stage of ontogeny, and thus at the outset profoundly deflects the course of behaviour of the whole organism; WATASE (531).

Nature of sex: Critical review of some recent theories in regard to sex and reproduction. In contrasting the sexes, their reproductive elements, &c., the contrast must be expressed in contrasted *ratios* of anabolism (A) and Katabolism (K). Thus, in the female the ratio  $\frac{A}{K}$  is greater than the corresponding vital ratio in the male. This is designed as a correction of the general thesis of the "Evolution of Sex;" THOMSON & WYLD (489).

Origin of sex: Conditions unfavourable to ready assimilation are believed to tend to produce male offspring, reverse for female. In conjugation the starving cell is fed on surplus nourishment of the over-fed cell; MANN (336).

Parthenogenesis: History of our knowledge; TASCHENBERG (484).—Apparent parthenogenesis in ova of Frog; DEHNER (122).

Dissogonie : a new form of sexual reproduction ; CHUN (96).

Fertilisation and conjugation ; HERTWIG (259).

"Gamophagie:" According to the author, one germinal substance assimilates the other in fertilisation ; MÜLLER (369).—Fission and gemmation : WAGNER (521).

Hermaphroditism : Traces of hermaphroditism in the Lamprey, not without interest in reference to speculations as to the possible hermaphroditism of ancestral Vertebrates ; BEARD (40).—Hermaphroditism of *Astacus* ; La VALETTE, St. GEORGE (321).—Certain spermatogonia, "untrue to their original destination," may, instead of dividing into spermatocytes, grow into ova.—Lateral hermaphroditism ; TETENS (486).

Hybridism ; ELLIOT (150).—Hybrid birds in nature ; SUCHETET (482).—Fertile sexual union can take place only between those insects whose genital appendages precisely correspond. Hybridism between different species seems mechanically impossible ; ESCHERICH (156).

Variability and hybridism of *Cyprinoids* ; HEINCKE (243).

Breeding in and in ; SCHILLER-TIETZ (451).

Biological conclusions illustrated in reference to certain *Hymenoptera*, *Diptera*, and *Coleoptera* ; VERHOEFF (506).—Sex and reproduction in *Hymenoptera*. (1) Proterothesia : in nests of *Fossoria*, *Vesparia*, and their parasites, the tenants of the anterior cells are male of the posterior female. (2) Proterocracy : the individuals which appear first in a brood are the strongest. (3) Proterandry, correlated with Proterothesia. (4) Polyandry ; VERHOEFF (504, 505).—Dichogamy in *Lepidoptera*. The advantage of dichogamy, or "dichogenesis," lies in the prevention of in-breeding ; its occurrence may be readily accounted for by natural selection ; PETERSEN (394).

Peculiarities of reproduction ; SEITZ (463).

Fecundation in tailed Batrachians ; BOULENGER (67).—Detailed study of reproduction in *Gobius minutus* ; GUITEL (222).—Variations in genital organs of *Gamasinae*, and mode of coition ; MICHAEL (350).

Determination of sex by nutrition ; LANDOIS (317).

Double-broodedness of *Lepidoptera* : whether influenced by the state of the food-plant ; MERRIFIELD (346).

Parental care among animals ; KRÄPELIN (309).

Conclusions as to the societies of Termites ; GRASSI (208).

Regeneration : Regeneration of the tail in *Lumbriculus* ; general considerations as to regenerative processes ; RANDOLPH (413).—Regeneration in Annelids : Bifurcated Annelids. Collection of cases. Some general considerations. "The bifurcated monstrosities exhibit what may be a universally present but latent ability of parts of a highly-organized animal to form a complete individual like that to which they belong ;" ANDREWS (11).

Regeneration ; WEISMANN (535).—Periodic regeneration of the upper half of the body in *Diplosomidae* ; OKA (381).—Post-generation ; ROUX (438).

Influence of nutrition on sex ; LANDOIS (317).—Influence of nutrition

on reproduction : It seems likely that the nutritive supply has much to do with Proterothesia and Proterocracy in *Hymenoptera* ; VERHOEFF (504-506).

## (2) HEREDITY.

Historical and critical survey ; sums up in favour of Lamarekian conceptions ; OSBORN (385, 386).—Nature of heredity ; HURST (273).

Das Keimplasma : This statement of Weismann's theory of heredity centres around his conception of the germ-plasm. This nuclear substance is believed to contain reserve vital units, or biophors, which are combined into units of a higher order—the determinants. Each determinant is capable of controlling one kind of cell, and the germ-cell contains as many determinants as there are different cells, or groups of cells, in the fully-formed organism, which are capable of being individually determined from the germ onwards. The determinants have a definite arrangement in the germ-plasm, forming aggregates of a higher order—the ids. It is suggested that parts of the chromosomes are the ids, and that the nuclear rods are aggregates of ids, spoken of as idants. Apart from the elaborate working out of the conception of a germ-plasm, there are important discussions of regeneration, multiplication by fission and gemmation, alternation of generations, the formation of the germ-cells, amphimixis, reversion, dimorphism, and polymorphism, the non-transmission of acquired characters, variation, &c. ; WEISMANN (535).

Translation of Weismann's essays ; POULTON & SHIPLEY (538).—Weismann's "Idant" theory of heredity ; HARTOG (234).

Transmission or non-transmission of acquired characters ; ELLIOT (149), KNAUTHE (295), MILES (351), FATH (418), RILEY (426).

Answer to Weismann ; BROWN-SÉQUARD (78A).

Pathology, so far from offering any support to the hypothesis of the transmission of acquired characters, pronounces against it ; TYLDEN (494).

It is assumed, on insufficient evidence, that the nucleus is the sole bearer of hereditary qualities. The cell-plasma, and especially the centrosomata, must be taken account of ; BERGH (48).

In reference to the Hoazin, GADOW (181) states that the crop, by its downward growth, gradually encroaches upon, and modifies, the conformation of neighbouring organs ; some of these modifications of the sternal apparatus are already pre-formed to a considerable extent, before they are actually necessitated. They are inherited.

Transmission of acquired characters in *Pleuronectidae* ; GIARD (200).

HENKING (245) does not depreciate the importance of the nucleus as a bearer of hereditary qualities, but he also believes in the importance of the plasma, and in the modifiability of the chromosomata by influences from the protoplasm.

What is an "acquired character" ? "Acquired characters, however evident they may be to all but the neo-Darwinians, have the convenient

property of becoming blastogenic, or not acquired, whenever they are proved to be transmitted" ; NUTTING (380).

Inheritance of albinism ; STAATS VON WACQUANT-GEOZELLES (520).

Heredity ; GRABHAM (206), MÜLLER (369).

## E. EVOLUTION.

### GENERAL QUESTIONS.

Das Keimplasma ; WEISMANN (535) [*cf.* Heredity, *suprà*].

Darwin and after Darwin ; ROMANES (433) ; German translation (434).

Catechism of Darwinism ; ZACHARIAS (553).

Critical account of modern theories ; HAMANN (231).

French predecessors of Darwin : historical and critical ; QUATREFAGES (409).

Darwin and Darwinism ; MORSELLI, CANESTRINI, CATTANEO, & LORIA (366).

Present state of the Evolution problem ; some arguments for Lamarckian position ; OSBORN (385, 386).

Criticism of Darwinian theory from philosophical standpoint ; CREUTZBURG (111).

Controverted questions *re* Evolution, &c. ; HUXLEY (275).

Experimental evolution ; VARIGNY (498).

Origin of species ; EIMER (146).

Elementary description of universal evolution ; RAIMOND COULON (107).

On Delboën's laws ; SOREL (476).

Dynamical theory of organisms ; HAUPTMANN (236).

Protest against a materialistic conception of the organism ; ARDISONE (20).

Transformation and descent ; VIRCHOW (516).

Convergence or relationship ? WERNER (541).

Das biologische Grundgesetz ; ARNDT (21).

Urzeugung ; SCHAAFFHAUSEN (450).

Theories of nutrition and heredity, in which energy is not recognised as one of the prime factors in every vital process, should be received with caution ; MILES (351).

The importance of recognising the principle of the conservation of energy when considering the evolution of organisms [*cf.* Herbert Spencer's "Principles of Biology"] ; RYDER (444).

General works : see also COULON (107), DUTOIT-HALLER (136), FARGES (160), MOTTO (368), TSCHEMEN (493).

## NATURE AND ORIGIN OF VARIATIONS.

Classification of animal variations ; BRANDT (70) :—

- |                |   |   |
|----------------|---|---|
| I. Spontaneous | { | <ul style="list-style-type: none"> <li><i>a.</i> Strictly individual.</li> <li><i>b.</i> Proper to the vital cycle.</li> <li><i>c.</i> Proper to sex.</li> <li><i>d.</i> Proper to future generations.</li> </ul>               |
| II. Acquired   | { | <ul style="list-style-type: none"> <li><i>a.</i> Due to external influences.</li> <li><i>b.</i> Due to function.</li> <li><i>c.</i> Due to pathological processes.</li> <li><i>d.</i> Correlated with the preceding.</li> </ul> |

Variations may be inherited (*a*) directly from parents, (*b*) indirectly by influence, (*c*) by atavism from ancestors.

Definite versus Fortuitous Variation : Discussion ; MEEHAN (344), McMURRICH (333), ALLEN (5), COPE (101).

Fortuitous variation ; RILEY (425).

On the "constitution" of Molluses ; SIMROTH (470).—Constitutional variation of markings in insects ; ESCHERICH (156).—Correlated variations in *Crangon vulgaris* ; WELDON (539).

Struggle for existence among the parts of an organism ; METSCHNIKOFF (348).

Translation of essays on Amphimixis, &c. ; WEISMANN (538).

Factors in evolution of Mammals ; MORGAN (363).

Précis of teratology—human and animal ; GUINARD (220).—Probable teratogenic origin of two species of *Tricladidae* (*Dendrocoelum nausicae* and *Phagocata gracilis*) ; HALLEZ (229).—Teratological variations : The malformations which occur in Frog embryos in consequence of the imperfect closure of the "Urmund" are analogous to the Terata mesodidyma and Katadidyma in Teleostean fishes, and to Spina bifida in higher Vertebrates ; HERTWIG (255).

Variation in internal structures of *Gamasine* ; MICHAEL (350).

Variability and Hybridism of Cyprinoids ; HEINCKE (243).

## INFLUENCE OF ENVIRONMENT.

Results of experimental Evolution ; VARIGNY (498).

Specific variation in Arthropods : A certain kind of variation occurs with peculiar frequency in certain groups, thus sexual dimorphism in Copepods, protective adaptation in *Decapoda*. The habit of masking ; HECKER (228).

Influence of artificial environmental conditions on ova ; DRIESCH (130), HERBST (249), DARESTE (119) and others [see Embryology].

Influence of surroundings on variation ; LOCARD (326).

Colour-relation between Lepidopterous larvæ, pupæ, cocoons, and imagines, and their surroundings ; POULTON (402).—Influence of surroundings on colour ; BEDDARD (41).—Influence of coloured light on

development : Green Planarians and *Hydræ* do not grow better with violet than green light, are exceptions to the rule that green light is prejudicial to development. The *Hydra* grows more quickly in red than white light ; YUNG (550).—Influence of light on orientation of chick embryo ; BLANC (57).

Atrophy, &c., of eyes in cave-inhabiting animals ; JOSEPH (290).

Heliotropic animals ; ANDREWS (10), after LOEB.—Heliotropic *Nauplii* ; VIGUIER (512).

Influence of light on metabolism : Exclusion of light is associated with increase of weight, more fat, less hæmoglobin, &c. ; GRAFFENBERGER (207), EWALD (156A).

Influence of electrical stimulus on ova ; ROUX (439).—Influence of electrical stimulus on leucocytes ; DINEUR (124).—Galvanic stimulation of aquatic animals ; NAGEL (371, 372).

Relations between temperature and protoplasmic movement ; CLARK (98).—Influence of refrigeration and desiccation ; KOCHS (297).

Influence of fresh water on marine animals ; GOGORZA Y GONZÁLES (205).

Influence of cocain on *Cœlenterates*, worms, arthropods, &c. ; DANILEWSKY (116).

General discussion of parasitism ; LOOSS (327).

Functional adaptation ; MINERVINI (353) and ENDRES (152).

On the mechanical origin of fish scales : The scales have a segmental arrangement ; their imbrication is explained by reference to the musculature which, in contraction, throws the integument into rhombic areolæ ; RYDER (443).

Evolution of skeletal structures : "An essay towards a mechanical explanation of organic structures." The occurrence of the tetraxial type of skeletal element in Sponges, Echinoderms, and Polycistina, in different materials, suggests independence of vital forces. Vesicular bodies tend to exhibit a tetraxial skeletal structure quite apart from metabolism, for merely physical reasons ; DREYER (128).

Relation of ossification to the statics and mechanics of the skeleton ; ZSCHOKKE (563).

Pœcilogony : when members of the same species have a different ontogeny ; GIARD (199). Cf. BROOKS & HERRICK (76).

On the relation between the shapes of fishes and the strength of the currents in which they live ; SCHIRSCHOFF (452).

The surface film of water, its relation to the life of plants and animals ; MIALL (349).

Effect of sudden pressure ; PHILIPPON (395).

Geotropism of lower organisms ; JENSEN (286).

Experiments on metamorphosis of Amphibians ; BATAILLON (31).

#### SELECTION AND ELIMINATION.

Struggle for existence : Geometrical representation of relative intensity of the conflict between organisms. For organisms swimming in water

or flying in air, we may say that their accessibility, *inter se*, and liability to attack is from 60,000 directions; for sessile organisms, or those lying on a plane, from 30,000 directions; for heavy terrestrial forms, from 400 directions; for burrowing or tubicolous, from 314 to 0; for testaceous, operculate, mimetic, or parasitic forms, accessibility almost or quite nil; RYDER (445).

Interspecific competition: *Myrmica ruginodis* making war on its own species; BIGNELL (53).

Extermination of animals; SCHULZ (459), VARIGNY (499). [*Cf.* LUCAS, F. A. Animals recently extinct, or threatened with extinction, as represented in the collections of the U. S. National Museum. Washington: 8vo, 1891, 40 pp., 11 pls.]

Natural selection among mankind; AMMON (8): in *Lepidoptera*; COMSTOCK (100).

Struggle between males: Not only is there a struggle between males, but the large number of males allows a selection of the fittest amongst the fit, and the strongest are first in the field (proterocracy); VERHOEFF (505).

Sexual selection; WALLACE (525).

Case of *Gelasimus annulipes*: The brightly-coloured chela of the male is (1) a club in contests with rival males, and (2) a signal to allure the females, and may be also a stopper for the burrow and a nuptial support; ALCOCK (4).

## PARTICULAR PROBLEMS.

### (a) COLOURATION.

Ætiology of animal colouration; BEDDARD (41).—Physiology of colour-change; BIEDERMANN (51).—Colour-changes in Fishes; SEMPER (465).

Physiological chemistry of colouration; URECH (496).—Analysis of green pigment in wings of *Lepidoptera*: Regarded as probably excretory; derived from uric acid; GRIFFITHS (215).—Rôle of pigments in histolysis and histogenesis; KUNCKEL D'HERCULAI (313).

The origin of pigment: Pigment is present in the ova of *Bufo* almost from the first, and seems to arise from a modification of yolk-plates; WINKLER (546).—Melanic pigment; POUCHET (401).—Melanism and melanochromism in British *Lepidoptera*; TUTT (495).

Albinism: APLIN (17), FABANI (157), MACPHERSON (334), WAITE (523), WEIR (534).

Colouration in birds; WURM (549): in birds' eggs; KOENIG-WARTHAUSEN, FRHR. (299), and RASPAIL (416, 417).

Origin and migration of pigment in Amphibia; EHRMANN (143, 144).

Melanism in Fishes; KNAUTHE (296).

Colours of insects: COSTE (105, 106), GRIFFITHS (215), HOPKINS (266),

MELDOLA (266), URECH (496, 497), and others [see INSECTA].—Evolution of colours in the *Vanessæ*; SMITH (473).

Pigments of ova of *Crustacea*; HEIM (242).

Iridescent colours; HODGKINSON (263).

Protective colouring; JOHNS (288).—Markings of Vertebrates; WERNER (540).

Hints from pathology: CASPARY, EHLMANN, JARISCH, KAPOSÍ—Die Pathogenese der Pigmentierungen und Entfärbungen der Haut: Verh. 10 Internat. Med. Congress Berlin (1890); Abth. Dermatol. 1892, pp. 91-114.

### (b) MIMICRY.

General discussion of mimicry; special study of *Papilionidæ*; HAASE (223).

Recent observations, with criticism; BEDDARD (42).

Mimicry and other adaptations; BRANDES (69).

Alleged "aggressive mimicry" of *Volucellæ*; BATESON (34).

Aggressive mimicry of *Volucellæ*; corrections on latter author's book on "Colours of Animals"; POULTON (34).—A notable case: *Peridexia* (*Coleoptera*) and *Pogonius* (*Hymenoptera*); HELLER (244).—Mimicry in small insects; KENNEL (292).—Mimicry in Spiders; BANKS (28).—Mimicry; FABANI (159).

Protective resemblance in the animal kingdom; PLATEAU (397).

### (c) MISCELLANEOUS.

Evolution of Flat-fishes; CUNNINGHAM (115) and GIARD (200).

Origin of muscle: The cross-striation is the expression of alternately strong and weak waves in the muscle substance. It is incomplete in sluggish animals, and more marked as activity increases. The striation is, in short, the result of increased function—the mechanical result of contraction; EIMER (145).

The origin of lungs: Air-breathing in fishes supposed to have been originally performed by the unchanged walls of the œsophagus; then a pouch, . . . an air-bladder, . . . a lung. [But how?]; MORRIS (365).

Origin of *Metazoa*: Discussion of *Salinella*; the higher organisation of the multicellular individual is to be regarded as the consequence of the gradual degeneration of the separate cell-individuals which compose it; APATHY (15).

Adaptations facilitating "masking" in Crabs; AURIVILLIUS (24), and HECKER (228).

Migration of birds; DIXON (126).—Speech of Monkeys; GARNER (184).

Segmentation: Occurrence of intercalated segments perhaps due to very favourable developmental conditions, to rapid growth causing "slips" in segmentation. Perhaps such cases help to bridge the gulf between Nemerteans and Annelids; CORI (103).

Rudimentary organs ; KOCKS (298).—Study of rudimentary eyes in *Vertebrata* ; KOHL (304).—Flughaut Bildung ; MARSHALL (342).

Genital appendages of Insects : The intricacies of the genital appendages are not readily interpreted as adaptive. Their final cause is das Princip der Reinerhaltung der Arten ; Their efficient cause ein unbekanntes Kraft ; ESCHERICH (155).

Venation of wings in *Lepidoptera* ; SPULER (477).

Parallel series in life-histories of *Pemphigiidæ* ; HORVATH (269).

Asymmetry of Gastropods ; BUCHNER (80), LANG (319).

Parallelism of evolution in Old and New World ; GAUDRY (187).

Stages of growth and decline [in development of *Brachiopoda*] ; BEECHER (43).

Evolution of ant-societies ; WASMANN (528).

Man's past and future considered according to the doctrine of evolution ; BÜCHNER (81).

## II. MAMMALIA.

BY

R. LYDEKKER, B.A., F.G.S.

---

A FEATURE of the year is the large amount of work which has been devoted to the elucidation of the morphology of the dentition, BALLOWITZ, BATESON, FREUND, KÜKENTHAL, LECHE, OSBORN, RÖSE, SCOTT, SCHLOSSER, THOMAS, and TOPINARD having all contributed memoirs on this subject. The view that Mammals were originally diphyodont is gaining universal acceptance. Attention may be drawn to SCOTT's investigations as to the homology of the cusps of the premolars, which, if confirmed, show a remarkable difference between those teeth and the molars. Another subject which has received especial attention is that of the brain, and its relations in the higher and lower Mammals; SYMINGTON having reverted to the old view that the brain of the non-Placentals has no corpus-callosum. BEDDARD, BEEVOR, CHAPMAN, HILL, and TURNER have also contributed to this branch.

In distribution, HART MERRIAM's important memoir on the life-zones of North America is likely to become classical.

Important advances have been made in our knowledge of the Mammals of Africa, several interesting new Antelopes having been described during the year—notably those respectively named by SCLATER and THOMAS. The latter's revision of the genus *Cephalophus* has cleared up the synonymy of a very difficult group; while TRUE's memoir on the Mammals of East Africa is an important addition to our knowledge of the zoology of that region. The revision of the *Hyracoidea*, by THOMAS, is likewise of great value. The same writer has also contributed papers on the Mammals of the East, recording a new species of *Hemigale*, as well as several of *Tupaia* and *Sciurus*. The large number of new species of Monkeys described is also a feature of the year's work; while the observations of THOMAS on the dentition of *Centetes* claim special notice. Of high value are WINGE's memoir on the Bats of Lagoa Santa, and CAMERON's observations as to the relations of the antlers of the American Deer to those of the Old World.

Among palæontological work, reference may be made to EARLE's memoirs on *Coryphodon* and *Palæosyops*, and also to the remarkable horned Artiodactyle—*Protoceras*, now fully described by OSBORN and WORTMAN. In faunistic palæontology, BOULE and GAUDRY, as well as DÉPÉRET, have written on the Mammals of France; RÜTIMEYER has continued his researches on those of Switzerland, and HOFMANN on those of Styria; while COPE, OSBORN, and SCOTT have devoted themselves to the North American forms. The first part of the Mammalian portion of ZITTEL's Palæontologie indicates that when complete the work will be of the highest value to students of both fossil and recent Mammals.

### I.—THE GENERAL SUBJECT.\*

ABBOTT, W. J. L. [See p. 30, *Pinnipedia*.]

ALLEN, H. On the Foramen Magnum of the Common Porpoise, and on a Human Lower Jaw of unusual size. P. Ac. Philad. 1892, p. 289.

In two specimens of the skull of the Porpoise the basioccipital was seen to be entirely excluded from the condyles by the junction of the exoccipitals below the foramen magnum.

——. [See also *Chiroptera*, p. 25, and *Carnivora*, p. 28.]

ALLEN, J. A. On a small Collection of Mammals from the Galapagos Islands, collected by Dr. G. Baur. Bull. Am. Mus. Nat. Hist. iv, pp. 47–50.

Includes a new *Atalapha*, a new *Oryzomys*, and the common and black Rats. [See *Vespertilionidæ* and *Muridæ*.]

——. The Geographical Distribution of North American Mammals. T. c. pp. 199–243.

Adopts zone-divisions considerably differing from those taken by Merriam in the memoir cited on p. 11; giving the characteristic fauna of each.

AMEGHINO, F. Répliques aux Critiques du Dr. Burmeister sur quelques Genres de Mammifères Fossiles de la République Argentine. Bol. Ac. Arg. xii, pp. 437–469.

A reply to the criticisms of Burmeister quoted in Zool. Rec. xxviii, *Mamm.* pp. 5 & 6, in which the author maintains the correctness of his own views. The distinctness of the genera *Acrotherium*, *Adinotherium*, and *Notohippus*, from *Nesodon*, is insisted upon, and it is urged that the critic has confounded milk with permanent teeth, and that his restoration of the skull of the latter is quite incorrect. The substitution of *Pachyn-*

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

*odon* in place of *Trigodon*, &c., is shown to be quite unjustifiable. That the early Megatherioids had a thin layer of enamel between the cement and dentine of their teeth, is held to be fully proved; and it is mentioned that this feature harmonizes with the rudiments of an enamel-organ recently discovered among living Edentates. It is further stated that the alleged existence of a plastron among the Glyptodonts is incorrect, that which has been mistaken for such being in reality the head-shield. It is also pointed out that Burmeister has made certain errors in regard to the proper tails belonging to the various genera of this group. Finally, the author mentions that his own name, *Pontoplanodes* (Zool. Rec. xxviii, *Mamm.* p. 48), has priority over his critic's *Saurodelphis* (*loc. cit.*).

ANDERSON, J. On a small Collection of Mammals, Reptiles, and Batrachians from Barbary. P. Z. S. 1892, pp. 3-24.

11 species of Mammals are mentioned, among which *Plecotus auritus* is, for the first time, recorded from Tunisia, while its alleged occurrence in Algeria is authenticated.

——. [See also p. 35, *Spalacidae*.]

BALLOWITZ, E. [See p. 51, *Edentata*.]

BATESON, W. On Numerical Variation in Teeth, with a discussion of the Conception of Homology. P. Z. S. 1892, pp. 102-115, figs.

Numerous instances are given of individual variation in the number of teeth of Mammals; especial interest attaching to a skull of *Ommatophoca*, in which an incipient division of the first premolar on one side of the upper jaw is accompanied on the opposite side with the development of two complete teeth. It is considered that the Owenian theory of the homologies of Mammalian teeth, based on the hypothesis that the typical series is composed of a definite number of teeth, some of which may be absent in particular cases, is untenable; and a new view is propounded as to the homology of multiple parts.

BAUR, G. [See p. 54, *Monotremata*.]

BEAUREGARD, H. [See p. 25, *Chiroptera*, and p. 48, *Cetacea*.]

BEDDARD, F. E. [See p. 22, *Primates*, p. 32, *Rodentia*, and p. 36, *Octodontidae*.]

BEEVOR, C. E. [See p. 22, *Primates*.]

BENEDEN, P. J. V. [See p. 48, *Cetacea*.]

BLANC, L. Sur un Cas Remarquable de Dédoublément de la Région Tarso-Métatarsienne (Schistomelie). Ann. Soc. Linn. Lyon (2) xxix, pp. 40-51, figs.

Describes the anatomy of the hind foot of a Calf exhibiting a duplication of the metatarsus and pes, with the development of a third digit on one side of the duplicated pes.

BLANFORD, W. T. The Age of the Himalayas. Geol. Mag. (3) ix, pp. 161-168.

A list is given of the Mammalian fauna of Tibet, with notes on its evolution and insulation. [See p. 45, *Cervidæ*, and p. 46, *Camelidæ*.]

BOCAGE, J. V. B. DU. [See p. 25, *Chiroptera*.]

BOLAM, G. [See p. 26, *Vespertilionidæ*.]

\*BONNET, B. Grundriss der Entwicklungsgeschichte der Haussäugethiere. Berlin : 1891, 282 pp., figs.

BOULE, M. [See p. 6, GAUDRY, and p. 37, *Proboscidea*.]

BOUVIER, E. L. [See p. 30, *Pinnipedia*, and p. 48, *Cetacea*.]

BÜCHNER, E. [See p. 33, *Sciuridæ*, and p. 35, *Dipodidæ*.]

BUCKLEY, J. E. [See p. 7, HARVIE-BROWN & BUCKLEY.]

BUXTON, E. N. Short Stalks ; or Hunting Camps, North, South, East, and West. London : 1892, 8vo, 405 pp., illustrated.

A fully illustrated sporting account of many of the species of large game from various parts of the world.

CACCIAMALI, G. B. Sulla Classificazione dei Mammiferi. Riv. Ital. Sci. Nat. xii, pp. 49-51.

CAMERON, A. G. [See p. 44, *Cervidæ*.]

CANNIEU, A. [See p. 32, *Rodentia*.]

CAPELLINI, G. [See p. 48, *Cetacea*.]

CHAPMAN, F. M. Notes on Birds and Mammals observed near Trinidad, Cuba, with Remarks on the Origin of West Indian Bird Life. Bull. Am. Mus. Nat. Hist. iv, pp. 279-350.

Contains a few notes on the Mammals of S. Cuba, with description of a new subfossil species of *Hutia*. [See p. 36, *Octodontidæ*.]

CHAPMAN, H. [See p. 22, *Primates*, and p. 36, *Octodontidæ*.]

CHIEVITZ, J. H. Sur l'Existence de l'Area Centralis Retinæ dans les Quatres Premières Classes des Vertébrés. Overs. Dan. Selsk. 1891, pp. 239-253.

CHRISTY, M. [See p. 36, *Leporidæ*.]

CIACCIO, G. V. [See p. 40, *Equidæ*.]

COLLETT, R. [See p. 24, *Cercopithecidæ*.]

COOK, J. H. [See p. 29, *Ursidæ*.]

COPE, E. D. A Contribution to a Knowledge of the Fauna of the Blanco Beds of Texas. P. Ac. Philad. 1892, pp. 226-229.

Several Mammals are recorded from these beds, which are of late Tertiary age ; among them being a new *Mastodon*. [See p. 37, *Proboscidea*.]

[COPE, E. D.] On False Elbow-Joints. P. Am. Phil. Soc. xxx, pp. 285-291, pls. ix & x.

——. Points in the Kinetogenesis of the Limbs of Vertebrates. *T. c.* pp. 282-285.

——. [See also p. 40, *Equidæ*, and p. 52, *Marsupialia*.]

CRAGIN, F. W. [See p. 46, *Camelidæ*.]

DEPÉRET, C. La Faune de Mammifères Miocènes de la Grive-St-Alban (Isère), et de quelques autres Localités du Bassin du Rhone. Arch. Mus. Lyon, v, art. 2, 96 pp., 4 pls.

An important revision of all the Mammals hitherto described from these formations, with notices of a number of recently discovered specimens and descriptions of new forms. The author recognizes a total of 47 named species from Grive-St-Alban, of which 4 are new, while there are also several new varieties. Especial attention is directed to the *Chalicotheriidae*, and it is concluded that the older forms from Sansan and Grive-St-Alban belong to *Macrotherium*, while the Eppelsheim species pertains to *Chalicotherium*. The name *M. grande* is adopted for the species described. It is concluded, on account of the structure of both the skull and the limbs, that the group should be placed among the *Perissodactyla*. The fauna of Mt. Ceindre includes 18 named species, 3 of which are new. [See *Simiidae*, *Rhinolophidae*, *Vespertilionidae*, *Soricidae*, *Felidae*, *Viverridae*, *Mustelidae*, *Chalicotheriidae*, and *Suidæ*.]

——. Les Animaux Pliocènes du Roussillon. Mém. Soc. Géol.-Pal. iii, pp. 117-127, pls. i & ii.

The completion of the Mammalian portion of the memoir quoted in Zool. Rec. xxviii, *Mamm.* p. 7. The forms described include *Felis*, *Ursus*, *Lagomys*, *Hipparion*, *Cervus*, *Capreolus*, and *Dolichopithecus*. [See, p. 35, *Muridae* and, p. 46, *Cervidae*.]

DOLLO, L. Sur la Morphologie des Côtes. Bull. Sci. Fr. Belg. xxiv, pp. 1-19.

It is contended, in the first place, that ribs have not an inter-vertebral origin; and, in the second, that hæmapophyses are homologous with one another throughout the length of the vertebral column. The former view is illustrated by the conditions obtaining in the *Sirenia*.

DUN, W. S. [See p. 52, *Marsupialia*.]

DUVAL, M. [See p. 32, *Rodentia*.]

EARLE, C. [See p. 38, *Amblypoda*, and p. 42, *Titanotheriidae*.]

EGLINGTON, W. [See p. 12, NICOLLS.]

FABRINI, W. [See p. 28, *Felidae*.]

FAUVEL, A. A. La Faune du Chan-toung (Chine). *Rev. Quest. Sci.* (2) i, pp. 455-492.

Contains a notice of the prehistoric and living Mammals.

FILHOL, H. [See p. 27, *Macroscelididae*, and p. 30, *Creodonta*.]

FISERIUS, E. [See p. 32, *Rodentia*.]

FORBES, H. O. [See p. 30, *Pinnipedia*.]

FRENKEL, M. Du Tissu Conjonctif dans le Lobule Hépatique de certains Mammifères. *C.R. Soc. Biol.* 1892, pp. 38 & 39.

FREUND, P. [See p. 33, *Rodentia*.]

GADOW, H. [See p. 52, *Marsupialia*.]

GAUDRY, A. Excursion dans l'Amérique du Nord. *Bull. Soc. Géol.* (3) xix, pp. 936-1024.

Contains notes on American fossil Mammals and their phylogeny.

——. [See also p. 34, *Cercopithecidae*.]

—— & BOULE, M. Matériaux pour l'Histoire des Temps Quaternaires, pt. 4, pp. 105-130, pls. xx-xxiv. Paris: 1892, sm. 4to.

Treats of *Hyæna*, *Ursus*, and *Canis lupus*.

GEBERG, A. Ueber die Endigung des Gehörnerven in der Schnecke der Säugethiere. *Anat. Anz.* viii, 20-22.

GEHUCHTEN, A. V. Les Cellules Nervenses du Sympathique chez quelques Mammifères et chez l'Homme. *Cellule*, viii, pp. 83-85, pl.

It is concluded that the nervous elements in the sympathetic of Mammals are strictly comparable to those of the cerebro-spinal system. They are provided with two kinds of prolongations—one long and the other short; and always end freely.

GERMAIN, H. [See p. 24, *Cebidae*.]

GILIS, P. Anatomie des Scalènes (Costotrachélians) chez les Ruminants, les Solipèdes, et les Carnassiers. *C.R. Soc. Biol.* 1892, pp. 464-467.

——. [See also p. 33, *Rodentia*.]

GORJANOVIC-KRAMBERGER, D. O. [See p. 48, *Cetacea*.]

GREVÉ, C. [See p. 28, *Carnivora*.]

HAMILTON, D. Records of Sport in Southern India. London: 1892, 4to, 284 pp., illustrated.

Contains sporting accounts of many Indian Mammals.

HARTING, J. E. Vermin of the Farm. *J. R. Agric. Soc.* (3) iii, pp. 205-231 & 463-478, figs.

A popular illustrated account of the various Mammals supposed to be injurious to the English farmer. Contains an account of the present plague of *Microtus* (= *Arvicola*) *agrestis* in the south of Scotland.

——. [See also p. 30, *Mustelidae*, and p. 34, *Muridae*.]

HARVIE-BROWN, J. A., & BUCKLEY, E. A Vertebrate Fauna of Argyll and the Inner Hebrides. Edinburgh : 1892, 8vo, 252 pp., illustrated. Includes an account of the Mammals.

HENNEGUY, L. F. Sur la Constitution de l'Endoderm des Mammifères. C.R. Soc. Biol. 1892, pp. 277-279.

HEPBURN, D. [See p. 23, *Primates*.]

HICKS, H. [See p. 37, *Proboscidea*.]

HILL, A. The Hippocampus. P. R. Soc. lii, p. 5 (Abstract).

The subject of this paper was to test the deviation of the Hippocampus from the normal type in such Mammals as are devoid of smell, or possess this sense in a very limited degree. It was discovered that the fascia dentata was absent in those forms which possess no olfactory bulb or tract.

——. [See also p. 54, *Monotremata*.]

HOERNES, R. [See p. 47, *Chæropotamidae*.]

HOFMANN, A. Beiträge zur Miocänen Säugethier-fauna der Steiermark. JB. geol. Reichsanst., xlii, pp. 63-76, pls. ii & iii.

A continuation of the author's previous researches on the Miocene fauna of Styria. The species described are *Chalicomys jægeri*, *Hyænarctus brevirohinus*, *Trochictis taxodon*, *Hyomoschus peneckeï*, and *Sorex styriacus*. [See, p. 27, *Soricidae*, p. 29, *Ursidae*, and, p. 46, *Tragulidae*.]

HOWES, G. B. Notes upon the Shoulder-Girdle of certain Dicynodont Reptiles. J. Anat. Phys. xxvi, pp. 403-405.

It is incidentally mentioned that the coracoid process of the *Eutheria* and *Metatheria* represents the epicoracoid of the Monotremes, and also that the term precoracoid is inapplicable to the latter element.

HOWORTH, Sir H. H. [See p. 37, *Proboscidea*.]

HUDSON, W. H. The Naturalist in La Plata. London : 1892, 8vo, 388 pp., illustrated.

Contains accounts of the habits of many of the Argentine Mammals, more especially the Huanaco and the Viscacha.

HUTCHINSON, H. N. Extinct Monsters. London : 1892, 8vo, 254 pp., illustrated.

Contains restored figures of several species of extinct Mammals.

JENTINK, F. A. [See p. 34, *Muridae*.]

KOLMANN, —. [See p. 24, *Cercopithecidae*.]

KŘÍŽ, M. Die Höhlen in den Mährischen Devonkalken und ihre Vorzeit. JB. geol. Reichsanst., xli, pp. 442-570, pls. viii & ix.

An account of explorations in the caverns of northern Moravia, with details of their fauna.

KÜKENTHAL, W. Ueber den Ursprung und die Entwicklung der Säugetierzahne. *Jen. Z. Nat.* xxvi, pp. 469-489. Translated in *Ann. N. H.* (6) ix, pp. 279-285.

A recapitulation and further development of the author's views as to the evolution of Mammalian teeth. The theory that the Whales are connected by means of *Zeuglodon* with the Seals is disputed.

——. Ueber die Entstehung und Entwicklung der Säugetierstammes. *Biol. Centralbl.* xiii, pp. 400-413. Translated in *Ann. N. H.* (6) x, pp. 365-380.

The author summarizes his views as to the relationship between Mammals and the lower Vertebrates. He concludes that in the Theromorous or Anomodont Reptiles the original state of the dentition was that of polyphyodontism, while in the marsupial and placental Mammals it was diphyodont. In consequence, however, of the specialization of the individual teeth in the Anomodonts, all dentitions except the first have been suppressed; while in the Marsupials at least one tooth of the second dentition became functional. On the other hand, in spite of the specialization, both series of teeth appear in Placentals. Later on, the author considers that his view as to the formation of complex Mammalian teeth by the fusion of simple denticles is supported by the cheek-teeth of the *Multituberculata*. In the *Vertebrata*, as a whole, it appears, however, that the development of the dentition is primarily traceable to the fission of individual teeth. In regard to the relations of Mammals to other groups, it is urged that their ancestors were not Anomodont Reptiles, but primeval forms (from which the Anomodonts themselves may have diverged), living during the Palæozoic period, and having a generalized dentition of simple conical teeth. From these were developed the Multituberculate Mammals; of which the existing Monotremes are considered to be a specialized side-branch. The Marsupials are likewise considered to be another early branch from this same ancient stem, their dentition being traceable to a modification of the Multituberculate type. Finally, it is concluded that Placentals are not descended from Marsupials; the one having the second dentition as the permanent series, while in the other the first set persists.

——. [See also p. 43, *Cetacea*.]

KULAGIN, N. [See p. 29, *Canidæ*.]

LANGKAVEL, B. [See p. 29, *Canidæ*.]

LATASTE, F. [See p. 25, *Chiroptera*, and p. 36, *Leporidæ*.]

LECHE, W. Studien über die Entwicklung des Zahnsystems bei den Säugethieren. *Morph. JB.* xix, pp. 502-547, figs.

An important memoir, still further elaborating the subject of the succession and homologies of the Mammalian dentition. Kükenthal's conclusions are discussed in detail; and the author's own observations on dental development fully illustrated. Taking *Erinaceus* as a starting-

point, the author has studied the development of the teeth and the relations of the milk and permanent series in the following genera, viz.: *Talpa*, *Sorex*, *Didelphys*, *Myrmecobius*, *Perameles*, *Trichosurus*, *Phascogale*, *Tatusia*, *Dasyurus*, *Balanoptera*, *Procyon*, *Felis*, and *Canis*. In discussing the relations between the milk and permanent dentitions, it is shown that the teeth of the latter series are developed on the inner side of those of the former; while, contrary to the view of Kükenthal, reasons are given for considering the milk-dentition to be both autogenetically and phylogenetically the elder of the twain. As the result of all the forms examined, it is further concluded that the molars belong morphologically to the first dentition, *i.e.*, they are milk-teeth without vertical successors. The author takes the opportunity of mentioning that his previous views as to the teeth of Bats are incorrect; it now appearing that the almost completely tritubercular nature of their molars is the result of a kind of degeneration, and is in no wise primitive. It is also urged that the term, second dentition, is not the equivalent of persistent dentition, seeing that in the latter the molars belong to the first series; while, as in *Erinaceus*, some of the anterior teeth may likewise pertain to the first series. Hence the following stages of development of Mammalian dentition may be distinguished—(1) When the permanent dentition consists solely of teeth of the first series, *e.g.*, *Odontoceti*. (2) When the persistent dentition is composed of teeth of the first series, with the exception of the last premolar, *e.g.*, *Marsupialia*. (3) When the permanent dentition comprises molars of the first dentition, with incisors, canines, and premolars belonging partly to the first and partly to the second series, *e.g.*, *Erinaceus*. (4) When the permanent dentition is formed exclusively, with the exception of the molars, of teeth of the second series, as in all the higher Mammals. Later on it is argued that the monophyodontism of the inferior Mammals is the result of the non-appearance of the second dentition, whilst in the higher types it is produced by the suppression of the first series, that is to say by retrogressive evolution. In opposition to the view that the milk-dentition is a recent addition, the author is inclined to admit that it is, on the contrary, the second dentition, which has been but gradually acquired. With regard to the so-called “*Zahnwall*” and “*Zahnfurche*,” the author arrives at the same results in *Erinaceus*, as RÖSE in Man; *Zahnwall* and *Zahnfurche* having no relation to the origin or development of teeth. On the contrary, they have merely a relation to the configuration of the buccal cavity during that period of life in which teeth are wanting. To the foregoing ontogenetical researches are added observations on the formation of the dental system in general. Amongst these may be noted the important statement that in all *Mammalia* where homodontism is found (*Odontoceti*, *Edentata*), it is not a primitive character, but the result of retrogressive evolution. Additional highly interesting remarks are given on progressive and retrogressive evolution of the Mammalian dentitions.

LECHE, W. [See also p. 52, *Marsupialia*.]

LENHOSSEK, M. v. Die Nervenursprünge und Endigungen im Jacobson'schen Organ des Kaninchens. *Anat. Anz.* vii, pp. 628-635.

LYDEKKER, R. Discovery of Australian-like Mammals in South America. *Nature*, xlvi, pp. 11 & 12.

Notices the discovery in the Tertiary of South America of Marsupials allied to the Thylacine.

—. [See also p. 28, *Viverridæ*, p. 41, *Rhinocerotidæ*, p. 43, *Bovidæ*, p. 45, *Cervidæ*, p. 47, *Anoplotheriidæ*, p. 49, *Cetacea*, and p. 51, *Sirenia*.]

MACPHERSON, H. A. A Vertebrate Fauna of Lakeland. Edinburgh: 1892, 8vo, 650 pp., illustrated.

Contains notices of the Mammals of Cumberland, Westmoreland, and North Lancashire, and two special articles on the Red Deer and Pine Marten.

MAGGI, D. [See p. 23, *Primates*.]

MALAQUIN, A. Sur la Presence de Vertebres dans l'Eocene Inférieur du Nord de la France. *Ann. Soc. Géol. Nord.* xix, pp. 315-319.

Records a large *Coryphodon*.

MAJOR, C. J. F. Le Gisement Ossifère de Mitylini. In "Samos," by C. Stefani. Lausanne: 1892, 4to.

The author recapitulates his views as to the Upper Miocene age of the deposits of Samos, Pikermi, and Maragha. An important discussion is given on the affinities of *Chalicotherium*, in which it is suggested that its resemblances to *Palæosyops* do not indicate genetic relationship. It is concluded that the genus is quite distinct from *Macrotherium*, of the Middle Miocene of Sansan, and that the two together represent a distinct order—the *Ancylopoda*. A list is given of the Mammals of Samos.

MARES, F. Expériences sur l'Hibernation des Mammifères. *Mém. Soc. Biol.* 1892, pp. 313-320.

MARSH, O. C. Discovery of Cretaceous Mammals: Part 3. *Am. J. Sci.* (3) xliii, pp. 249-262, pls. v-xi.

Describes a number of teeth from the Laramie Cretaceous of Wyoming, many of which are referred to new genera and species of *Multituberculata* and *Marsupialia* [*q.v.*].

—. [See also p. 38, *Condylarthra*, and p. 40, *Equidæ*.]

MARTIN, H. T. [See p. 34, *Castoridæ*.]

MARTIN, K. [See p. 37, *Proboscidea*.]

MAŠKA, K. J. Die Diluviale Fauna und Spuren des Menschen in der Schoschunker Höhle in Mähren. *JB. geol. Reichsanst.* xli, pp. 415-422, pl. vii.

Records the occurrence of human remains with those of other Vertebrates in a Moravian cavern. The milk-dentition of *Hyæna crocuta* (*spelæa*) is figured.

MATSCHIE, P. Ueber einige Afrikanische Säugethiere. SB. nat. Fr. 1892, pp. 110-115 & 130-140. [See *Felidæ*, *Procaviidæ*, *Equidæ*, and *Bovidæ*.]

—. Ueber eine kleine Sammlung von Säugethiern und Reptilien, welche Herr L. Conradt aus Usambaru (Deutsch-Ost-Afrika), heimgebracht hat. *T. c.* pp. 101-110.

A few Micro-Mammalia are mentioned.

—. Ueber die Verbreitung einiger Säugethiere in Afrika. *T. c.* pp. 223-235.

Chiefly devoted to a criticism of True's paper (*infra*, p. 19), but also contains a description of a new *Cynocephalus* [see *Cercopithecidæ*, p. 24].

—. Ueber einige Neuerwerbungen des Berliner Zool. Gartens. *T. c.* pp. 220-223.

Mainly deals with certain Felines.

MELI, M. Sopra alcuni Resti di Mammiferi Fossili nei Terreni Quaternari della Provincia di Roma. Boll. Soc. Geol. Ital. x, 5 pp.

Records remains of a few recent and extinct species from the Pleistocene deposits in question.

MERRIAM, C. H. The Geographic Distribution of Life in North America, with special reference to the *Mammalia*. P. Biol. Soc. Washington, vii, pp. 1-64, map.

North America is divided, from north to south, into the Boreal, Transition, Sonoran, and Tropical zones, severally distinguished by a more or less characteristic Mammalian fauna. These zones are proved to coincide very closely with those founded by different writers respectively on the eastern and western sides of the continent, and are now shown to be transcontinental. The Boreal region is divided into an Arctic and a Boreal zone, the latter comprising the area south of the treeless Arctic districts, sweeping across the continent from Newfoundland and the southern shore of Hudson Bay to Alaska; and on its southern border giving off three prolongations running into the United States, down the Alleghanies, the Rocky Mountains, and the Cascade and Sierra Nevada ranges. The Transitional zone, as its name implies, is a kind of neutral area between the Boreal and the Sonoran. It is strongly urged that the Boreal zone and the northern portion of the Palæarctic region really form one zoological region, but that from the latter, as ordinarily understood, should be removed an area corresponding with that of the Sonoran zone. Full lists are given of the Mammalian fauna of the several zones, among which are some new subgeneric names, together with certain amendments on some generic terms generally in use. It is considered that the Glacial period has played a very important part in the present distribution of the North American fauna; it being even urged that the S. American Llamas were originally northern forms driven as far south as the latitude of the Andes by the cold. The paper con-

cludes with a criticism of some of Wallace's views, in which it is considered that he has not allowed sufficient importance to the effects of climate as a factor in distribution. [See, p. 33, *Sciuridæ*, p. 34, *Muridæ*, and, p. 35, *Geomyidæ*.]

[MERRIAM, C. H.] Descriptions of Nine New Mammals collected by E. W. Nelson, in the States of Colima and Jalisco, Mexico. *T. c.* pp. 164-174.

——. [See p. 27, *Soricidæ*, p. 34, *Muridæ*, and p. 35, *Geomyidæ*.]

MEYER, A. B. [See p. 25, *Cercopithecidæ*.]

MÖBIUS, K. [See p. 37, *Proboscidea*.]

MOEWES, F. [See p. 44, *Giraffidæ*.]

MORGAN, C. L. Factors in the Evolution of the *Mammalia*. *Nat. Sci.* i, pp. 97-101.

Criticizes some of Scott's views on this subject.

MORENO, F. P. [See p. 49, *Cetacea*.]

MUMMERY, J. H. Some Points in the Structure and Development of Dentine. *Phil. Tr.* clxxxii B, pp. 527-545, pls. xxxvi-xxxix.

The full text of the memoir quoted in *Zool. Rec.* xxviii, *Mamm.* p. 13.

NACHTRIEB, H. F. [See p. 24, *Lemuroidea*.]

NEHRING, A., *Verh. Anthrop. Ges.* 1892, p. 86, records 14 species of fossil Mammals from a cave near Schaffhausen; all but one being small forms.

——. [See also p. 45, *Cervidæ*, and p. 48, *Suidæ*.]

NEWTON, E. T. [See p. 34, *Castoridæ*.]

NICOLLS, J. A., & EGLINGTON, W. *The Sportsman in South Africa*. London: 1892, 8vo, pp. vi & 147, pls.

An illustrated descriptive work on all the large game of the districts lying to the south of the Zambesi [see, p. 44, *Bovidæ*.]

OGILBY, J. D. *Catalogue of Australian Mammals, with Introductory Notes on General Mammology*. Sydney: 1892, 8vo, 142 pp., figs.

The completion of the work, of which an advanced publication of the first portion is noticed in *Zool. Rec.* xxviii, *Mamm.* p. 14. The list includes both terrestrial and aquatic forms; and the author adopts the view of the indigenous origin of the Dingo. [See p. 35, *Muridæ*.]

OSBORN, H. F. *The History and Homologies of the Mammalian Molar Cusps*. *Anat. Anz.* vii, pp. 740-747.

In the course of this paper the author emphasizes his views that the primitive type of Mammalian molar was a simple cone; and contests the theory that the molars of the *Multituberculata* are due to the fusion of originally separate teeth.

——. [See also p. 31, *Creodonta*, p. 37, *Amblypoda*, p. 39, *Condylarthra* and *Perissodactyla*, p. 40, *Lophiodontidæ*, and p. 46, *Protoceratidæ*.]

OSBORN, H. F., & WORTMAN, J. L. Fossil Mammals of the Wahsatch and Wind River Beds. Bull. Am. Mus. Nat. Hist. iv, pp. 81-148, figs., pl. iv.

A very important paper, recording the results of working out a collection obtained in 1891. The Palæontological portion is divided into the four following sections, of which the third is by Wortman, while the others are by Osborn:—viz., (1) Homologies and Nomenclature of the Mammalian Molar Cusps; (2) the Classification of the *Perissodactyla*; (3) the Ancestry of the *Felidæ*; (4) Taxonomy and Morphology of the Primates, Creodonts, and Ungulates. In the first part of the paper attention is principally directed to the subsidiary cusps of the Mammalian molar, for which the general term *style* is suggested. [See *Creodonta*, *Perissodactyla*, and *Amblypoda*.]

PALMER, T. S. [See p. 30, *Otariidæ*.]

PAVLOW, M. [See p. 41, *Rhinocerotidæ*.]

PETRINI, —. [See p. 28, *Carnivora*.]

POHLIG, H. [See p. 37, *Proboscidea*, and p. 45, *Cervidæ*.]

POLAND, H. Fur-bearing Animals in Nature and in Commerce. London: 1892, 8vo, pp. lvi & 392, illustrated.

Contains tables of the number of pelts annually obtained from the various species of fur-bearing animals, with notices of the animals themselves. Reviewed in Nat. Science, i, pp. 624-626.

POMEL, A. [See p. 33, *Sciuridæ*, p. 35, *Muridæ*, and p. 44, *Giraffidæ*.]

POMMEROL, F. [See p. 40, *Equidæ*.]

POUCHET, G. [See p. 49, *Cetacea*.]

POUSARGUES, E. DE. [See p. 33, *Rodentia*, and p. 45, *Cervidæ*.]

QUELCH, J. J. [See p. 25, *Chiroptera*.]

REGNAULT, F. (1) Fouilles dans le Terrain Miocène Moyen de St. Gaudens (Haute-Garonne)—Le *Dryopitheque*, (2) Fouilles dans les Grotees de Gargas et de Malarnaud. C.R. Ass. Fr. Sci. xix, pt. 2, pp. 408-411, figs.

Figures a mandible of *Dryopithecus*, and a human lower jaw very similar to the one from Naulette.

RETTERER, E. DE. Sur la Morphologie et l'Evolution de l'Epithelium du Vagin des Mammifères. Mém. Soc. Biol. 1892, pp. 101-107.

ROBINSON, A. Development of Segmentation-Cavity, Archenteron, Germinal Layers, and Amnion of Mammals. Q. J. Micr. Sci. xxxiii, pp. 369-455, 5 pls.

—. [See also p. 33, *Rodentia*.]

RÖSE, C. Ueber die Entstehung und Formabänderungen der Menschlichen Molaren. *Anat. Anz.* vii, pp. 392-421, figs.

The author gives a detailed description of the cheek-teeth of human embryos, of various races, and indicates their mutual resemblances and differences, and their general bearing on the phylogeny of molars. It is stated that although, in some respects, the immature molars of Europeans resemble those of non-European nations, the reduction in the number of the tubercles found in the former is peculiar to them. It is further shown that this reduction-process tends to reproduce the original tritubercular type; the tubercles which disappear being those which have been superadded to the primitive triangle. It is added that Cope is correct in regarding the human first upper milk-molar as being formed strictly on the tritubercular type. It is shown that in all the upper cheek-teeth, the first cusp to appear is the antero-external, hitherto regarded as the paracone, but which is identified by the author with the protocone.

——. Ueber die erste Anlage der Zahnleiste beim Menschen. *Op. cit.* viii, pp. 29-32.

——. Ueber die schmelzlosen Zahnrudimente des Menschen. *Verh. deutsch. odont. Ges.* iv, pp. 1-28, figs.

Concludes that the toothlike bodies devoid of enamel frequently found in the front of human jaws are due to caries or other disease, and do not represent missing teeth.

——. Zur Phylogenie des Säugetiergebiss. *Biol. Centralbl.* xii, pp. 624-638.

A discussion as to the relationship of the teeth of Mammals to those of Reptiles. It is concluded that Placentals, Marsupials, and Menotremes are correlated, but not genetically related groups.

——. [See also p. 51, *Edentata*, and p. 52, *Marsupialia*.]

ROTHSCHILD, W. Descriptions of Two New Mammals from New Guinea. *P. Z. S.* 1892, pp. 545 & 546. [See p. 53, *Phalangeridae* and p. 54, *Echidnidae*.]

RÜTIMEYER, L. Die Eocäne Säugethier-welt von Egerkingen. *Abh. Schw. pal. Ges.* xviii, pp. 1-153, pls. i-viii.

The full memoir, of which a preliminary *resumé* (*Zool. Rec.* xxvii, *Mamm.* p. 13) had been previously published, descriptive of recent additions to our knowledge of the Mammals of the Swiss Siderolites. Many of the new species were mentioned in the preliminary notice, but as they were unaccompanied by any diagnosis could not be recognized. The title-page is dated 1891, but the description of the plates 1892; and from internal evidence (p. 62), it is evident that the memoir was not published until the latter year.

The first of the descriptive portion of the memoir treats of the Ungulates, which are classified as follows : viz.—

- A. *Ungulata Trigonodontia* (? = *Condylarthra*).
- B. *Ungulata Zygodontia*.
  - I. *Imparidigitata*.
    - a. *Palæotherida*.
    - b. *Lophiodontida*.
  - II. *Paridigitata*.
    - a. *Suina*.
    - b. *Selenodontia* (*Hyopotamus*, *Bachitherium*, etc.).

In the Trigonodonts it is argued that less importance should be assigned to the structure of the carpus and tarsus than to the trituberculism of the teeth. In the *Palæotheriidae* the genus *Paloplotherium* is maintained, and a new species described ; while in the *Lophiodontidae* there is likewise a new species of the type genus. *Pachynolophus* is divided into several subgenera, of which there is one new species ; the name *Hyacotherium siderolithicum* being still maintained for a member of this group, although its marked distinction from the typical *Hyacotherium* is mentioned.

Among the Artiodactyles, *Tapinodon gresslyi* is identified with *Hyopotamus* ; the skull from Hordwell referred by the Recorder to the former under the name of *Anthracotheerium gresslyi* being regarded as indicating a new form. *Hyopotamus picteti*, Lyd., is also considered to be identical with *H. gresslyi*, although identified by its founder with *Dacrytherium* [see p. 47]. Several new species of *Dichobunus* and *Xiphodonterium* are named ; and *Tetraselenodon* and *Bachitherium* are recorded from these beds, the former being placed near *Dichodon*, of which a new species is described.

Among the Rodents a new *Plesiarctomys* is described, and certain Insectivores are identified with some from Quercy. In the Creodonts a lower molar, described as *Ailuravus*, is referred to the *Arctocyoniidae*, with a suggestion of affinity to *Ælurus*. New species of *Hyænodon* and *Pterodon* are described, as well as a new genus of *Proviverridae*, approximating to the living African *Suricata* (*Rhynchæna*).

In the Lemuroids, *Adapis* and *Cænopithecus* are compared, and new species of *Pelycodus*, *Hyopsodus*, and *Necrolemur* described.

The memoir concludes with a discussion of the homologies and nomenclature of the elements of the Mammalian molar, and a general survey of the fauna of the Siderolites and its relationships.

[See p. 24, *Lemuroidea*, p. 31, *Proviverridae* and *Arctocyoniidae*, p. 32, *Hyænodontidae*, p. 33, *Sciuridae*, p. 40, *Lophiodontidae*, p. 41, *Palæotheriidae*, p. 47, *Dichodontidae*, *Anoplotheriidae*, *Cænotheriidae*, and *Anthracotheeriidae*.]

RÜTIMEYER, L. Die Eocänen Säugethiere von Egerkingen. Verh. Ges. Basel. x (Festschrift), pp. 101–129.

The first part of this paper deals with the author's earlier works in homologizing the cusps of Mammalian molars ; his own nomenclature

being contrasted with that subsequently published in the United States. The second portion has some general observations on the fauna of Egerkingen.

RUFFINI, H. [See p. 28, *Carnivora*.]

RUGE, G. [See p. 23, *Primates*.]

SAFFORD, J. M. The Pelvis of a *Megalonyx* and other Bones from Big-Bone Cave. Bull. Geol. Soc. Amer. iii, pp. 121-123.

SCHACHT, H. [See p. 28, *Carnivora*.]

SCHÄFF, E. [See p. 29, *Canidæ*.]

SCHULER, G. [See p. 45, *Cervidæ*.]

SCHLOSSER, M. Ueber die Deutung des Milchgebisses der Säugethiere. Verh. deutsch. odont. Ges. iv, 10 pp.

A recapitulation and discussion of recent views as to the homology and development of the milk dentition. In the course of the paper it is stated that living Elephants have no deciduous incisors.

——. Ueber die systematische Stellung der Gattungen *Plesiadapis*, *Protoadapis*, *Pleuraspidotherium*, and *Orthaspidotherium*. JB. Mineral. 1892, ii, pp. 238-240.

It is concluded that the first two of the genera named, which had been previously assigned to the Lemuroids, are more probably Rodents, although having a fuller dentition than any existing member of the order. On the other hand the genera *Pleuraspidotherium* and *Orthaspidotherium* are considered to represent Condylarthrous Ungulates, probably allied to the *Perissodactyla*. They had been previously referred to the *Insectivora*.

SCHÖNLAND, S. [See p. 41, *Equidæ*.]

SCLATER, P. L. On a small Collection of Mammals brought by Mr. A. Sharpe from Nyassaland. P. Z. S. 1892, pp. 97 & 98.

8 species are noticed, and among these the range of *Tragelaphus angasi* is extended more to the north than was previously known.

——. [See also p. 24, *Cercopithecidæ*, and p. 43, *Bovidæ*.]

SCOTT, O. B. The Evolution of the Premolar Teeth in the Mammals. P. Ac. Philad. 1892, pp. 405-440.

In the first place the author refers to Fleischmann's objections to the view of the development of the more complex types of Mammalian molars from a simple cone, and to the homology between the cusps of those of the upper and lower jaws. It is considered that these objections cannot be sustained, more especially as the author believes that the Marsupials are not the ancestors of the Placentals. The author then proceeds to trace, in detail, the origin of the more complex types of premolars. Even when these teeth have assumed a completely molariform structure, their history is quite different from that of the molars, the elements which correspond in function and position to those of the latter not being

homologous therewith. The key to the homologies is afforded by the position of the protocone. As the premolars do not present quite the same degree of developmental constancy as the molars, the last of the series is adapted as the standard. The various cusps of the premolars are then contrasted with those of the molars, and new names proposed where necessary. It is concluded that while the inferior premolars may contain three elements which are homologous with molar cusps, the upper premolars contain but one cusp which can be homologized with a molar cusp; and, furthermore, that while in the molar crown the protocone is on the inner, and the protoconid on the outer side, in both sets of premolars, upper as well as lower, it retains its primitive position on the outer side. The following table exhibits the correspondence of position (not of homology) between the molar and premolar elements, when the whole are developed:—

## UPPER JAW.

MOLARS.		PREMOLARS.
<i>Protocone</i>	=	<i>Deuterocone.</i>
<i>Paracone</i>	=	<i>Protocone.</i>
<i>Metacone</i>	=	<i>Tritocone.</i>
<i>Hypocone</i>	=	<i>Tetartococone.</i>

## LOWER JAW.

<i>Protoconid</i>	=	<i>Protoconid.</i>
<i>Paraconid</i>	=	<i>Paraconid.</i>
<i>Metaconid</i>	=	<i>Deuteroconid.</i>
<i>Hypoconid</i>	=	<i>Metaconid.</i>
<i>Entoconid</i>	=	<i>Tetartococonid.</i>

The author next proceeds to point out the peculiarities of the premolar cusps in several of the orders. In an addendum it is mentioned that if Röse's views as to the position of the protocone and paracone in the molars (*suprà*, p. 14) prove to be well-founded, then the cusps of the premolars and molars will be homologous, and the new terms proposed unnecessary.

——. [See also p. 31, *Creodonta*.]

SNELL, O. Das Gewicht des Gehirnes und des Hirnmantels der Säugethiere in Beziehung zu deren geistigen Fähigkeiten. SB. Ges. Morph. vii, pp. 90-94.

SOUTHWELL, T. [See p. 50, *Cetacea*.]

SPENCER, W. B. The Fauna and Zoological Relationships of Tasmania. Rep. Austr. Assoc. 1892; Address to Sect. D, 44 pp.

STEFANESCU, G. [See p. 37, *Proboscidea*.]

STEPHENS, F. [See p. 33, *Sciuridæ*.]

1892. [VOL. XXIX.]

STRUTHERS, J. [See p. 23, *Primates*.]

SUSSDORF, J. [See p. 48, *Suidæ*.]

SWAYNE, H. G. C. [See p. 43, *Bovidæ*.]

TAEKER, J. [See p. 36, *Ungulata*.]

THOMAS, O. Notes on Dr. W. Kükenthal's Discoveries in Mammalian Dentition. *Ann. N. H.* (6) ix, pp. 308-311.

In consequence of Kükenthal's recent investigations, the author is now disposed to admit that Mammals may have been originally diphyodont; although, at the same time, this view renders it very difficult to account for the condition obtaining in the Mesozoic *Triconodon*. It is contended that Kükenthal is incorrect in homologizing the changing premolar of the Marsupials with the third of the typical series, and that it really corresponds with the fourth of the same. After some discussion as to the question whether the premolars or milk-molars are homologous with the true molars, it is argued that Kükenthal's theory of the fusion of the teeth of the permanent and milk sets to form the molars cannot be sustained; but his view of the fission of multicuspid teeth to form the unicuspid ones of the *Cetacea* is supported.

——. On Mammals from Nyassaland. *P. Z. S.* 1892, pp. 546-554.

Describes 27 species of Mammals sent home by Mr. H. H. Johnston, which include 3 new varieties, among them the Lesser Pala. *Isomys* is regarded as distinct from *Mus*. [See p. 34, *Muridæ*, and p. 43, *Bovidæ*.]

——. On some Mammals from Mount Dulit in North Borneo. *T. c.* pp. 221-227, pls. xviii & xix.

21 species are recognized, among which are the new *Hemigale hosei*, *Tupaia montana*, *T. melanura*, and *Sciurus brookei*. [See p. 27, *Tupaiidæ*, p. 29, *Viverridæ*, and p. 33, *Sciuridæ*.]

——. On some New *Mammalia* from the East Indian Archipelago. *Ann. N. H.* (6) ix, pp. 250-254.

A preliminary notice of the species described in the preceding paper, together with that of a new *Tragulus*. [See p. 46, *Tragulidæ*.]

——. On the *Mammalia* collected by Signor Leonardo Fea in Burma and Tenasserim. *Ann. Mus. Genov.* (2) x, pp. 913-949, pls. x & xi.

The list includes 114 species, all of which have been previously described. The name *Linsang* is adopted in lieu of *Prionodon*, and *Cervulus feæ* is figured. *Orcella fluminalis* is identified with *O. brevirostris*.

——. On the probable Identity of certain Specimens, formerly in the Lidth de Jeude Collection, and now in the British Museum, with those figured by Albert Seba in his "Thesaurus," in 1734. *P. Z. S.* 1892, pp. 309-318.

——. [See also p. 27, *Centetidæ*, p. 38, *Hyracoidea*, and p. 43, *Bovidæ*.]

TOPINARD, B. [See p. 23, *Primates*.]

TROUESSART, E. L. [See p. 41, *Equidæ*.]

TRUE, F. W. An Annotated Catalogue of the Mammals collected by Dr. W. L. Abbott in the Kilima-njaro Region, East Africa. P. U. S. Nat. Mus. xv, pp. 445-480, pls. lxxv-lxxx.

Contains a complete list of all the Mammals from the district, with descriptions of three new species, and figures of others recently named. [See p. 33, *Sciuridæ*, and p. 34, *Muridæ*.]

TSCHERSKI, J. D. Wissenschaftliche Resultate der v. d. k. Ak. Wiss. zur Erforschung des Janalandes und der Neusibirischen Inseln in den Jahren 1885 und 1886 ausgesandten Expedition. Pt. 4. Beschreibung der Sammlung Posttertiärer Säugethiere. Mém. Ac. Petersb. xl, pp. 1-511, pls. i & vi.

The species described include *Felis tigris*, *Canis lupus*, *C. familiaris*, *Vulpes lagopus*, *Gulo luscus*, *Ursus maritimus*, *U. arctos*, *Phoca ætida*, *Trichechus rosmarus*, *Spermophilus eversmanni*, *Lemmus obensis*, *Cuniculus torquatus*, *Lepus variabilis*, *Bison priscus*, *Oribos moschatus*, *Ovis nivicola*, *Colus saiga* [= *Saiga tartarica*], *Alces palmatus*, *Rangifer tarandus*, *Cervus canadensis*, v. *maral*, *Equus caballus*, and *Rhinoceros tichorhinus*. A skeleton of the recent *Equus przewalskii* is also described; and there are notices of the distribution of certain groups, of which the fossilized remains occur in the new Siberian islands. The occurrence of remains of the tiger at such a distance within the Arctic Circle is noteworthy.

TUCKERMANN, F. [See p. 23, *Primates*.]

TURNER, SIR W. [See p. 50, *Cetacea*, and p. 54, *Monotremata*.]

VAUGHAN, J. [See p. 41, *Equidæ*.]

WALDEYER, W. [See p. 51, *Sirenia*.]

WARD, R. Horn-Measurements and Weights of the Great Game of the World. London: 1892, 4to, 264 pp., illustrated.

— [See also p. 43, *Bovidæ*.]

WHITE, T. [See p. 29, *Canidæ*.]

WINGE, H. [See p. 25, *Chiroptera*.]

WITCHELL, C. A., & STRUGNELL, O. B. The Fauna and Flora of Gloucestershire. Stroud: 1892, 8vo, 301 pp., illustrated.

Contains an account of the Mammals of the district.

WOODWARD, M. F. [See p. 38, *Hyracoidea*.]

WORTMAN, J. L. [See OSBORN, and p. 46, *Proteroceratidæ*.]

ZIETZ, A. [See p. 53, *Marsupialia*.]

ZITTEL, K. A. Handbuch der Palæontologie. 1st Abtheil.—Palæozoologie, band iv, lief. 1. Munich: 1892, 8vo, 304 pp., illustrations.

This part of the work commences the Mammals, and includes the orders *Monotremata*, *Marsupialia*, *Edentata*, *Cetacea*, *Sirenia*, and the *Perissodactyle Ungulates*. The class is subdivided as follows:—

Subclass A. EPLACENTALIA.

Order 1. *Monotremata*.

2. *Allotheria* (*Multituberculata*).

3. *Marsupialia*.

Suborder a. *Polyprotodontia*.

b. *Diprotodontia*.

Subclass B. PLACENTALIA.

Order 4. *Edentata*.

5. *Cetacea*.

Suborder a. *Archæoceti*.

b. *Odontoceti*.

c. *Mystacoceti*.

Order 6. *Sirenia*.

7. *Ungulata*.

Suborder a. *Condylarthra*.

b. *Perissodactyla*.

c. *Artiodactyla*.

d. *Amblypoda*.

e. *Proboscidea*.

f. *Toxodontia*.

g. *Typotheria*.

h. *Hyracoidea*.

Order 8. *Tillodontia*.

9. *Rodentia*.

10. *Insectivora*.

11. *Chiroptera*.

12. *Carnivora*.

Suborder a. *Creodonta*.

b. *Fissipedia*.

c. *Pinnipedia*.

Order 13. *Primates*.

Suborder a. *Prosimiæ*.

b. *Simiæ*.

c. *Bimana*.

The Polyprotodont Secondary Mammals are classed among the Marsupials; while the existing *Myrmecobius* is made the type of a separate family.

## II.—FAUNAS.

## A.—RECENT.

*Britain.* See HARVIE-BROWN & BUCKLEY, p. 7; MACPHERSON, p. 10; and WITCHELL & STRUGNELL, p. 19.

*Asia.* See BLANFORD (Tibet), p. 4; FAUVEL (China), p. 6; THOMAS (Malayana and Burma), p. 18.

*Africa.* See ANDERSON, p. 3; MATSCHIE, p. 11; NICOLLS & EGLINGTON, p. 12; SCLATER, p. 43; THOMAS, p. 18; TRUE, p. 19.

*America.* See ALLEN (Galapagos), p. 2; CHAPMAN (Cuba), p. 4; LATASTE (Chilian Bats), p. 25; MERRIAM, p. 11; QUELCH (Guiana Bats), p. 25; WINGE (Brazilian Bats), p. 25.

*Australia.* See OGILBY, p. 12; SPENCER, p. 17; ZIETZ, p. 19.

## B.—FOSSIL.

*Europe.* See DEPÉRET (France), p. 5; GAUDRY & BOULE (France), p. 6; HOFMANN (Styria), p. 7; MAŠKA (Moravia), p. 10; MAJOR (Pikermi and Samos), p. 10; MELI (Italy), p. 11; NEHRING (Germany), p. 12; RÜTIMEYER (Switzerland), p. 14.

*Asia.* See TSCHERSKI (Siberia), p. 19.

*N. America.* See COPE, p. 4; MARSH, p. 10; OSBORN & WORTMAN, p. 13; SCOTT, p. 16.

## III.—SPECIAL STRUCTURES, DEVELOPMENT, ETC.

CIRCULATORY SYSTEM.—See BEAUREGARD, *Chiroptera*, p. 25.

DENTITION.—See ALLEN, *Chiroptera*, p. 25; BALLOWITZ, *Edentata*, p. 51; BATESON, p. 3; FREUND, *Rodentia*, p. 33; KÜKENTHAL, p. 49; LECHE, p. 8; LYDEKKER, *Sirenia*, p. 31; OSBORN, p. 12; RÖSE, *Edentata*, p. 51; and *Marsupialia*, p. 52; SCOTT, p. 16; SCHLOSSER, p. 17; TAEKER, *Ungulata*, p. 36; THOMAS, p. 18, and *Centetidae*, p. 27; TOPINARD, *Primates*, p. 23; WOODWARD, *Hyracoidea*, p. 38.

DEVELOPMENT, EMBRYOLOGY, AND REPRODUCTION.—See CANNIEU, *Rodentia*, p. 32 (penis); DUVAL, *Rodentia*, p. 32 (placenta); FISERIUS, *Rodentia*, p. 32; FLEISCHMANN, *Rodentia*, p. 33 (placenta); POUSARGUES, *Rodentia*, p. 33 (penis); ROBINSON, p. 13 (germinal layers), and *Rodentia*, p. 33 (yolk-sac and placenta).

DIGESTIVE SYSTEM.—See CARLIER, *Erinaceidae*, p. 27 (histology); TURNER, *Cetacea*, p. 50; WALDEYER, *Sirenia*, p. 51.

EAR.—See GEBERG, p. 6.

EYE.—See CHIEVITZ, p. 4.

GLANDS.—See PETRINI, *Carnivora*, p. 28; TUCKERMANN, *Primates*, p. 23.

HISTOLOGY.—See CARLIER, *Erinaceidae*, p. 27 (digestive system)

FRENKEL, p. 6 (hepatic connective tissue); HENNEGUY, p. 7 (endoderm); MUMMERY, p. 12 (dentine); RETTERER, p. 13 (epithelium).

MORPHOLOGY.—See CAMERON, p. 44 (antlers); DOLLO, p. 5 (ribs); HEPBURN, *Primates*, p. 23 (grooves in hand and foot); HOWES, p. 7 (shoulder-girdle); KÜKENTHAL, p. 8 (teeth); OSBORN, p. 12 (teeth); RÖSE, p. 14 (teeth); SCOTT, p. 16 (teeth); SCHLOSSER, p. 16 (teeth); THOMAS, p. 18 (teeth); TOPINARD, *Primates*, p. 23 (teeth).

MUSCLES.—See ALLEN, *Carnivora*, p. 28; BEDDARD, *Primates, infra*, and *Octodontidæ*, p. 36; GILIS, p. 6, and *Rodentia*, p. 33; HEPBURN, *Primates*, p. 23; RUGE, *Primates*, p. 23.

NERVES AND BRAIN.—See BEDDARD, *Rodentia*, p. 32, and *Octodontidæ*, p. 36; BEEVOR, *Primates, infra*; CHAPMAN, *Primates, infra*; GEBERG, p. 6; GEHUCHTEN, p. 6; HEPBURN, *Primates*, p. 23; HILL, p. 7, and *Monotremata*, p. 54; LENHOSSÉK, p. 10; RUFFINI, *Carnivora*, p. 28; SYMINGTON, *Marsupialia*, p. 53; TURNER, *Monotremata*, p. 54.

NOSE.—See LENHOSSÉK, p. 10 (Jacobson's organ); SYMINGTON, *Marsupialia*, p. 53 (Jacobson's organ).

OSTEOLOGY.—See ALLEN, p. 2, and *Carnivora*, p. 28; BAUR, *Monotremata*, p. 54; COPE, p. 5; HOWES, p. 7; MAGGI, *Primates*, p. 23; STRUTHERS, *Primates*, p. 23.

#### IV.—SPECIAL WORK.

(*Extinct groups and species are indicated by a †.*)

##### 1. PRIMATES.

BEDDARD, F. E. Contributions to the Anatomy of the Anthropoid Apes. P. Z. S. 1892, pp. 118–120 (Abstract).

Compares the myology of *Anthropopithecus* [*Troglodytes*] *calvus* with *A. niger*; and also shows that an Ape recently exhibited in the Zoological Society's Gardens, and believed to be an adult example of *Simia morio*, was immature.

BEEVOR, C. E. On the Course of the Fibres of the Cingulum and the Posterior Parts of the Corpus Callosum and Fornix in the Marmoset Monkey. Phil. Tr. clxxxii B, pp. 135–199, pls. xx–xxiv.

The full text of the memoir quoted in Zool. Rec. xxviii, *Mamm.* p. 22.

CHAPMAN, H. Observations upon the Brain of the Gorilla. P. Ac. Philad. 1892, pp. 203–212, pls. xi & xii.

The author points out the features in which the Gorilla's brain differs from those of other Anthropoids, and suggests that the Gorilla may be descended from *Cynocephalus*; the other forms having totally distinct origins.

HEPBURN, D. Comparative Anatomy of the Muscles and Nerves of the Superior and Inferior Extremities of the Anthropoid Apes. *J. Anat. Phys.* (2) vi, pp. 149-186 & 324-356, pls. iii & ix.

An elaborate comparison of these structures in a large number of the *Primates*.

— The Integumentary Grooves on the Palm of the Hand and Sole of the Foot of Man and the Anthropoid Apes. *Op. cit.* xxvii, pp. 112-130, pls. vii-ix.

It is found that both hand and foot bear external evidence of the muscular homologies existing between them; and as these homologies are almost identical in man and apes, so are the lines produced in the skin by muscles. Modifications in the size of muscles have produced some variation in the direction of the lines, but not sufficient to obscure the general adherence to one plan. While the human hand has developed into a better grasping organ than that of an ape, and the foot into a more secure organ of support, both retain evidence of their fundamental unity of structure, and both are capable of performing the same kinds of movements, subject to certain modifications suited to the necessities of each case.

MAGGI, L. La Sutura Endomesognatica alla Superficie Facciale degli Intermascellari nel *Semnopithecus entellus*. *Rend. Ist. Lombardo* (2) xxv, pp. 89 & 90, pl. i.

RUGE, G. Zeugnisse für die metamere Verkürzung des Rumpfes bei Säugethieren; Der Musculus Rectus Thoraco-abdominalis der Primaten. *Morph. JB.* xix, pp. 376-427, pls. xii & xiv.

An elaborate study of the relations of this muscle in a number of *Primates*, with an account of its morphological bearings.

STRUTHERS, J. The Articular Processes of the Vertebrae of the Gorilla compared with those in Man, and on Costo-Vertebral Variation in the Gorilla. *J. Anat. Phys.* xxvii, pp. 131-138.

TOPINARD, P. De l'Évolution des Molaires et des Prémolaires chez les *Primates*, et en particulier chez l'Homme. *L'Anthrop.* iii, pp. 641-710, figs.

An elaborate dissertation on the formation and homologies of the cusps and roots of the cheek-teeth of the *Primates*, with observations on the relation of these teeth to the tritubercular type. The author is of opinion that the theory of the direct descent of Man from Lemuroids cannot be sustained; and he inclines to the view that the *Hominidae* should be separated from the other Anthropoids to constitute a distinct suborder.

TUCKERMAN, F. The Gustatory Organs of *Ateles ater*. *J. Anat. Phys.* xxvi, pp. 391-393.

## A.—ANTHROPOIDEA.

## a. SIMIIDÆ.

† *Dryopithecus* : note on its femur ; POHLIG, SB. niederrhein. Ges. 1892, pp. 41–43.

*Hylobates hainanus*, n. sp., THOMAS, Ann. N. H. (6) ix, pp. 85 & 86, Hainan. Distinguished by absence of light frontal band.

† *Pliopithecus antiquus*, n. var. *chantrei*, DÉPÉRET, Arch. Mus. Lyon, v, p. 9, pl. ii, fig. 14, Mt. Ceindre.

## b. CERCOPITHECIDÆ.

COLLETT, R. On a New Monkey from North-East Sumatra. P. Z. S. 1892, pp. 613–617, pl. xlii.

GAUDRY, C.R. cxiv, pp. 1236 & 1237, records the occurrence of fragmentary remains of a Monkey from a cavern in the Haute-Garonne.

*Macacus cynomolgus* : embryo described by KOLMANN, Anat. Anz. vii, pp. 335–340.

† *Macacus trarensis*, n. sp., POMEL, C.R. cxiv, pp. 157–160, Pleistocene, Algeria.

*Semnopithecus everetti*, n. sp., THOMAS, P. Z. S. 1892, p. 582, N. Borneo.

*Semnopithecus cruciger*, n. sp., THOMAS, Ann. N. H. (6) x, pp. 475–477, Borneo.

*Semnopithecus pyrrhus*, its distinctness from *S. maurus* ; JENTINK, Notes Leyd. Mus. xiv, pp. 119–121, pls. iii & iv.

*Semnopithecus thomasi*, n. sp., COLLETT, *op. cit.*, Sumatra.

*Semnopithecus nemæus*, recorded by MEYER, P. Z. S. 1892, p. 665, from Hainan.

*Cercopithecus schmidtii*, n. sp., MATSCHIE, Zool. Anz. xv, p. 161, Uganda.

*Cercopithecus stairsi*, n. sp., SCLATER, P. Z. S. 1892, p. 580, pl. xl, Lower Zambesi.

*Cynocephalus langheldi*, n. sp., MATSCHIE, SB. nat. Fr. 1892, p. 232, Ungaru, E. Africa.

## c. CEBIDÆ.

GERMAIN, H. Les Sapajous. Act. Soc. Chili, i, pp. 105–107

Notes on the habits of these Monkeys.

## B.—LEMUROIDEA.

NACHTRIEB, H. F. A New Lemur. Zool. Anz. xv, pp. 147 & 148.

A preliminary notice of a Lemur from the Philippines regarded as indicating a new species.

*Lemur menagensis*, n. sp., NACHTRIEB, *loc. cit.*

†*Necrolemur cartieri*, n. sp., L. RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 114, Up. Eocene, Switzerland.

†*Pelycodus helveticus*, n. sp., RÜTIMEYER, *t. c.* p. 117, *ibid.*

†*Hyposodus jurensis*, n. sp., RÜTIMEYER, *t. c.* p. 121, *ibid.*

## 2. CHIROPTERA.

ALLEN, H. On a New Subfamily of Phyllostome Bats. P. U. S. Nat. Mus. xv, pp. 437-439.

It is concluded that *Natalus* should be removed from the *Vespertilionidae* to form a subfamily of *Phyllostomatidae*.

—. On the Molars of the Pteropine Bats. P. Ac. Philad. 1892, pp. 172 & 173.

The author believes that he is able to identify the constituent cusps of these teeth with those of the quadritubercular type, in which case they cease to be aberrant.

BEAUREGARD, H. Le Canal Carotidien des Roussettes. C.R. Soc. Biol. 1892, pp. 914-916.

BOCAGE, J. V. B. DU. Observations sur les Espèces du Genre *Cynonycteris* rencontrées en Angola par M. d'Anchieta. J. Sci. Lisb. (2) vii, pp. 173-178, figs.

It is concluded that the species represented are probably *C. straminea*, *C. ægyptiaca*, and *C. collaris*.

LATASTE, F. Études sur la Faune Chilienne—Note sur les Chauves-Souris. Act. Soc. Chili, i, pp. 70-91.

The list includes 1 *Desmodus*, 1 *Sturnira*, 1 *Nyctinomus*, 3 *Vespertilio*, 2 *Atalapha*, and 4 *Vesperugo*.

QUELCH, J. J. The Bats of British Guiana. Timehri (2) vi, pp. 90-109.

Notes on the habits of the various species. It is stated that there are blood-sucking Bats in districts where *Desmodus* is unknown.

WINGE, H. Jordfundne og nulevende Flagermus (*Chiroptera*) fra Lagoa Santa, Minas Geraes, Brasilien; nach Udsigt over Flagermusenes indtyrdes Scægtskab. E. Mus. Lund. vol. iii, pp. 1-65, pls. i & ii.

An important memoir on the Bats of Lagoa Santa, uniform with the one on the Rodents noticed in Zool. Rec. xxiv, *Mamm.* p. 32, but, unfortunately, in Danish. As in that case, the recent and fossil forms are taken together, and figures of the skulls and dentition of the majority given. No species are new; but a full account is given of the forgotten *Phyllostoma humerale*, Lund, now referred to *Stenoderma*. Numerous species, described more or less imperfectly by the same author, are assigned to their proper genera. It is proposed to alter the names of the Bats termed by Dobson *Lonchoglossa wiedi* and *Molossus temmincki* into

*L. ecaudata* and *L. histipes* respectively; but both these changes are inadmissible, according to the rules of nomenclature. Two appendices follow the systematic portion, the first containing an account of the author's investigations on the myology of Bats and his proposed classification, while the second deals with the work of other writers. This part appears to contain a number of valuable observations, and also comprises a complete series of dental formulæ, given in such a manner as to indicate what the author considers to be the homologies of the individual teeth throughout the order.

#### a. PTEROPODIDÆ.

*Cynopterus blanfordi*, n. sp., THOMAS, Ann. Mus. Genov. (2) x, p. 884 (1891), Karin Hills, Burma. See also *t. c.* p. 921, pl. xi.

#### b. RHINOLOPHIDÆ.

*Rhinolophus ferrum-equinum*: DE KERVILLE, Le Nat. 1891, p. 239, describes and photographs a colony hibernating in a cave in the department of Eure.

†*Rhinolophus lugdunensis et collongensis*, n. spp., DEPÉRET, Arch. Mus. Lyon, v, pp. 13 & 16, pl. ii, figs. 4-9, Miocene, Mt. Ceindre.

#### c. VESPERTILIONIDÆ.

BOLAM, G. Daubenton's Bat in Northumberland, with remarks upon other Species recorded from the district. Naturalist, 1892, pp. 269-272.

†*Vespertilio grivensis*, n. sp., DEPÉRET, Arch. Mus. Lyon, v, p. 11, pl. ii, figs. 2 & 3, Miocene, Grive-St-Alban.

*Rhogeëssa alleni*, n. sp., THOMAS, Ann. N. H. (6) x, pp. 477 & 478, Mexico.

*Scotophilus temmincki*, regarded by H. ALLEN, P. U. S. Nat. Mus. xv, pp. 442 & 443, as nearly allied to *Atalapha* and *Dasypterus*.

*Atalapha brachyotis*, n. sp., J. A. ALLEN, Bull. Am. Mus. Nat. Hist. iv, pp. 47 & 48, Galapagos I.

*Nyctophilus walkeri*, n. sp., THOMAS, Ann. N. H. (6) x, pp. 405 & 406, Adelaide R., Australia.

*Harpiocephalus fœæ*, n. sp., THOMAS, Ann. Mus. Genov. (2) x, p. 884 (1891), Karin Hills, Burma. See also *t. c.* p. 926.

*Natalus*, Gray, amended by Winge (*suprà*, p. 25), p. 38, to *Natalis*; transferred by Allen, *suprà*, to *Phyllostomatidæ*.

#### d. PHYLLOSTOMATIDÆ.

*Chilonycteris darvyi*, n. var. *fulvus*, THOMAS, Ann. N. H. (6) p. 410, Mexico.

- Ectophylla alba*, n. g. & sp., H. ALLEN, P. U. S. Nat. Mus. xv, pp. 441 & 442, Honduras. Founded on a mutilated skin without skull.
- Artibeus*, Leach, amended by Winge (*suprà*, p. 25), p. 38, to *Artobius*.
- Artibeus harti*, n. sp., THOMAS, Ann. N. H. (6) ix, pp. 408-410, Trinidad.

### 3. INSECTIVORA.

#### a. TUPAIIDÆ.

- Tupaia everetti*, n. sp., THOMAS, Ann. N. H. (6) ix, pp. 250 & 251, Mindanao, Philippines.
- Tupaia picta*, n. sp., THOMAS, *t. c.* pp. 251 & 252, N. Borneo.
- Tupaia montana*, n. sp., THOMAS, *t. c.* p. 252, Mt. Dulit, N. Borneo. Also P. Z. S. 1892, p. 223.
- Tupaia melanura*, n. sp., THOMAS, *t. c.* pp. 252 & 253, *ibid.* Also P. Z. S. 1892, p. 224.

#### b. MACROSCELIDIDÆ.

- FILHOL, H. Note sur un Insectivore Nouveau. Bull. Soc. Philom. (8) iv, p. 134.

Describes and figures the hinder end of a mandibular ramus considered to be allied to the existing *Rhynchocyon*.

- †*Pseudorhynchocyon cayluxi*, n. g. & sp., FILHOL, *l. c.*, Phosphorites, Caylux.

#### c. SORICIDÆ.

- †*Sorex styriacus*, n. sp., HOFMANN, JB. geol. Reichsanst. xlii, p. 74, pl. iii, fig. 4, Miocene, Styria.
- Sorex oreopolus* et *saussurei*, n. spp., MERRIAM, P. Biol. Soc. Washington, vii, pp. 173 & 174, Mexico.

#### d. ERINACEIDÆ.

- CARLIER, E. W. Contributions to the Histology of the Hedgehog (*Erinaceus europæus*). J. Anat. Phys. xxvii, pp. 85-111 & 169-178, pls. iv-vi & xi.

The first part deals with the alimentary canal, the second with the liver, and the third with the skin. The spines are shown to be the morphological equivalents of hairs.

#### e. CENTETIDÆ.

- THOMAS, O. On the Insectivorous Genus *Echinops*, Martin, with Notes on the Dentition of the Allied Genera. P. Z. S. 1892, pp. 500-505.
- After noticing in detail the leading dental and other characteristics of

*Echinops*, the author shows that the adult dentition of *Centetes* exhibits the Marsupial feature of having four molars. It is suggested that the presumed affinity between *Solenodon* and *Centetes* is merely due to the feature of trituberculism in the molar dentition.

*Echinops telfuiri*, n. var. *palescens*, THOMAS, t. c. p. 501, S. Madagascar.

#### 4. CARNIVORA.

##### A.—CARNIVORA VERA.

ALLEN, H. On the Cephalo-humeral Muscle, and the so-called rudimentary Clavicle of *Carnivora*. P. Ac. Philad. 1892, p. 217.

Suggests that the ossification met with in the muscles of the shoulder of Carnivores is not really a representative of the clavicle.

GREVÉ, C. Die Geographische Verbreitung der Barenartigen. Zool. Jahrb. Abth. f. Syst. vi, pp. 588–616, pl. xxvii.

The geographical distribution of the various species of *Ursidæ*, *Procyonidæ*, *Arctictis*, *Cercoleptes*, &c.

PETRINI, —. Note sur la Présence de Corpuscules de Pacini et de Ganglions Nerveux dans le Pancréas du Chat. CR. Soc. Biol. 1892, pp. 275 & 276.

SCHACHT, H. Die Raubsäugethiere des Teutoburger Walder. VIII, Der Fischotter (*Lutra vulgaris*); IX, Der Dachs (*Meles taxus*). Zool. Gart. xxxiii, pp. 41–48.

RUFFINI, A. Sur un Réticule Nerveux Spécial, et sur quelques Corpuscules de Pacini qui se trouvent en connexion avec les Organes Musculo-tendineux du Chat. Arch. Ital. Biol. xvii, pp. 101–106.

##### a. FELIDÆ.

FABRINI, E. Su alcuni Felini del Pliocene Italiano. Atti [Mem. Rend.] Acc. Rom. (5) i, pp. 257–263.

Preliminary notes on Pliocene Feline remains in the Museum at Florence.

†*Felis hillianus* [a], n. sp., COPE, Am. Nat. xxvi, p. 1029, Pliocene, Texas. *Caracal berberorum*, n. sp., MATSCHIE, SB. nat. Fr. 1892, p. 114, N. Africa.

†*Pseudaelurus transitorius*, n. sp., DÉPERET, Arch. Mus. Lyon, v, p. 21, pl. i, figs. 5 & 6, Miocene, Grive-St-Alban.

##### b. VIVERRIDÆ.

LYDEKKER, R. On the Occurrence of the so-called *Viverra hastingiae* of Hordwell in the French Phosphorites. Q. J. Geol. Soc. xlviii, pp. 373 & 374, fig.

It is shown that *Viverra hastingiae*, Davies, is common to the Oligocene

of France and Hordwell, and since there is no character by which the lower jaw of the type of the latter can be satisfactorily distinguished from the type of *V. angustidens*, Filhol, it is considered that *V. hastingiae* is specifically inseparable from *V. angustidens*. Hence the cranium, which is the subject of the communication, is figured under the latter and earlier name. There is added a list of 7 Mammals known to be common to the Headon Beds of Hordwell and the Isle of Wight, and the French phosphorites.

*Genetta vulgaris*, recorded by DE KERVILLE, Bull. Soc. Rouen, 1890, pp. 79 & 80, from the Department of the Eure.

†*Progenetta*, n. g., DÉPERET, Arch. Mus. Lyon, v, p. 34, pl. i, fig. 3; type, *Mustela incerta*, Lartet.

*Linsang*, adopted by THOMAS, Ann. Mus. Genov. (2) x, p. 9, in place of *Prionodon*; the latter being preoccupied by *Priodon*.

*Hemigale hosei*, n. sp., THOMAS, Ann. N. H. (6) ix, p. 250, and P. Z. S. 1892, p. 222, pl. xviii, Mt. Dulit, Borneo.

#### c. HYÆNIDÆ.

†*Borophagus diversidens*, n. g. & sp., COPE, Am. Nat. xxvi, p. 1029, Pliocene, Texas.

#### d. CANIDÆ.

KULAGIN, N. Mittheilung über die Hunderasse Laika (Eskimo-hunde) in Russland. Zool. Jahrb. Abth. f. Syst. vi, pp. 435-441, pl. xx.

LANGKAU, B. Ueber Dingos, Pariah- und Neuseeländische Hunde. Zool. Gart. xxxiii, pp. 33-38.

— Der Polarfuchs (*Canis lagopus*). T. c. pp. 79-88 & 111-119.

SCHÄFF, E. Ueber den Schädel von *Canis adustus*, Sund. Zool. Jahrb. Abth. f. Syst. vi, pp. 522-531, pl. xxv.

A comparison of the skull of this Jackal with those of other species.

WHITE, T. On the Native Dog of New Zealand. Tr. N. Z. Inst. xxiv, pp. 540-557.

#### e. URSIDÆ.

COOKE, J. H. On the occurrence of *Ursus arctos* in the Malta Pleistocene. Med. Nat. ii, pp. 267-269.

*Hyænartus brevirohinus*, HOFMANN, JB. geol. Reichsanst. xlii, p. 64, pl. ii, figs. 1-3, = *Cephalogale brevirohinus*, Hofmann [Zool. Rec. xxiv, Mamm. p. 25], = *Hyænartus minutus*, Koken [Zool. Rec. xxv, Mamm. p. 31].

*f.* MUSTELIDÆ.

HARTING, J. E. The British Marten (*Martes sylvatica*, Nilsson). Zool. (3) xv, pp. 450-459 (1891), and xvi, pp. 131-138.

An account of its distribution and habits in the British Islands.

†*Martes delphinensis*, n. sp., DEPÈRET, Arch. Mus. Lyon, v, p. 26, pl. i, fig. 10, Miocene, Grive-St-Alban.

†*Mustela incerta*, Lartet, referred by Depèret to *Viverridæ* (*vide suprà*).

†*Canimartes cumminsi*, n. g. & sp., COPE, Am. Nat. xxvi, p. 1029, Pliocene, Texas.

## B.—PINNIPEDIA.

ABBOTT, W. J. L. On the occurrence of Walrus in the Thames Valley. P. Geol. Assoc. xii, p. 357.

BOUVIER, E. L. Plexus formés par les Artères Intercostales du *Phoca vitulina*. Bull. Soc. Philom. (8) v, pp. 81-84.

FORBES, H. O. On some points in the Anatomy of a Sea Bear caught off Sumner, Canterbury, New Zealand; with notes on the New Zealand Eared Seals. Tr. N. Z. Inst. xxiv, pp. 198-200.

A preliminary paper dealing with some points in the anatomy of *Arctocephalus forsteri*. The author objects to the division of the *Otariidæ* into *Otaria* and *Arctocephalus*; and he would subdivide the latter into *Eumetopias* (Hair-seals, or Sea-lions), and *Arctocephalus* proper (Fur-seals, or Sea-bears). In the New Zealand region he recognizes *Eu. hookeri* (Auckland Island Hair-seal), and *A. forsteri*, of which *Otaria cinerea* is the female. The skins described by J. W. Clarke as *Otaria cinerea*, Péron, are referred to *A. forsteri*; being those of Fur-seals. Péron's name must be dropped. *Eu. hookeri* appears to be confined to the Auckland Isles; while *A. forsteri* is common to New Zealand, Chatham Island, and the Seal-Rocks, near Port Stephens, New South Wales.

*g.* OTARIIDÆ.

†*Callotaria*, n. nom., PALMER, P. Biol. Soc. Washington, vii, p. 156; to replace *Callorhinus*, Gray (preoccupied).

## †C.—CREODONTA.

FILHOL, H. Note sur le *Quercitherium tenebrosum*. Bull. Soc. Philom. (8) iv, pp. 135-137.

Describes and figures the upper and lower dentition of this remarkable Creodont from the Phosphorites.

OSBORN, Bull. Am. Mus. Nat. Hist. iv, pp. 103-118, gives a synopsis of the Wahsatch forms, which are divided into *Palæonictidæ*, *Oxyenidæ*, *Proviverridæ*, *Miacidæ*, *Mesonychidæ*, and *Arctocyonidæ*. *Oxyæna* is shown to have  $\frac{3}{3}$  incisors.

SCOTT, W. B. A Revision of the North American *Creodonta*, with notes on some Genera which have been referred to that Group. P. Ac. Philad. 1892, pp. 291-323.

The group is divided into the families *Oxyclenidæ*, *Arctocyonidæ*, *Triisodontidæ*, *Mesonychidæ*, *Proviverridæ* (= *Leptictidæ*, in part), *Palæonyctidæ* (= *Ambloctynidæ*), *Hyænodontidæ* (= *Oxyenidæ*), and *Miacidæ*, each of which is fuller defined. Then follows a classified synopsis of the genera, among which several are new (*vide infra*).

#### h. OXYCLENIDÆ.

- †*Protochriacus*, n. g., SCOTT, P. Ac. Philad. 1892, p. 296 ; type, *Chriacus priscus*, Cope.
- †*Epichriacus*, n. g., SCOTT, l. c. ; type, *Chriacus schlosserianus*, Cope.
- †*Pentacodon*, n. g., SCOTT, l. c. ; type, *Chriacus inversus*, Cope.
- †*Ellipsodon*, n. g., SCOTT, t. c. p. 298 ; type, *Tricentes inæquidens*, Cope.

#### i. †ARCTOCYONIDÆ.

- †*Ailuravus picteti*, n. g. & sp., L. RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 97, Up. Eocene, Switzerland.
- †*Clanodon*, n. g., SCOTT, op. cit. p. 298 ; type, *Mioclenus ferox*, Cope.
- †*Tetraclanodon*, n. g., SCOTT, t. c. p. 299 ; type, *Mioclenus flowerianus*, Cope.

#### j. †TRIISODONTIDÆ.

- †*Microclanodon*, n. g., SCOTT, t. c. p. 302 ; type, *Triisodon assurgens*, Cope.

#### k. †MESONYCHIDÆ.

- †*Dissacus leptognathus*, n. sp., OSBORN, Bull. Am. Mus. Nat. Hist. iv, p. 112, Eocene, Wahsatch Beds.
- †*Pachyæna gigantea*, n. sp., OSBORN, t. c., pp. 113 & 114, *ibid*.

#### l. †PROVIVERRIDÆ.

- †*Prorhizæna egerkingiæ*, n. sp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 105, Up. Eocene, Switzerland.

## m. †PALÆONYCTIDÆ.

WORTMAN, Bull. Am. Mus. Nat. Hist. iv, pp. 95-103, points out how the dentition of *Palæonictis* and *Patriofelis* shows a transition towards that of the *Felidæ*, the upper p. 4 and the lower m. 1 developing into carnassials. *Ambloctonus* is included in the family, of which a diagnosis is given by OSBORN, *t. c.* p. 104.

†*Patriofelis leidyani* [a] n. sp., WORTMAN, *t. c.* p. 98, Eocene, Wahsatch Beds.

†*Palæonictis occidentalis*, n. sp., OSBORN, *t. c.* p. 104, *ibid.*

## n. †HYÆNODONTIDÆ.

†*Hyænodon schlosseri*, n. sp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 101, Up. Eocene, Switzerland.

†*Pterodon magnus*, n. sp., RÜTIMEYER, *t. c.*, p. 99, *ibid.*

## INCERTÆ SEDIS.

†*Protagonodon*, n. g., SCOTT, *op. cit.* p. 322 : type, *Miocænus pentacus*, Cope.

†*Paradoxodon*, n. g., SCOTT, *l. c.* ; type, *Chriacus ruetimeyeranus*, Cope.

†*Carcinodon*, n. g., SCOTT, *t. c.*, p. 323 ; type, *Miocænus filholianus*, Cope.

## 5.—RODENTIA.

BEDDARD, F. E. On the Convolution of the Cerebral Hemispheres of certain Rodents. P. Z. S. 1892, pp. 596-613, figs.

This paper refers chiefly to *Dasyprocta*, *Cælogenys*, *Lagostomus*, *Hydrochærus*, and *Dolichotis*, being the genera of Rodents in which the brains show the greatest development of convolutions. The author illustrates the form of the convolutions in these and other genera, and discusses the bearing of his observations upon classification.

CANNIEU, A. Recherches sur l'Appareil Reproducteur Male du *Cavia*. Rev. Sci. Nat. Ouest. ii, pp. 55-63, and figs. [incomplete].

DUVAL, M. Le Placenta des Rongeurs et l'Inversion des Feuilletts Blastodermiques. *T. c.* pp. 917-919.

——. Le Placenta des Rongeurs. J. de l'Anat. Phys. xxviii, pp. 58-98 & 333-453, pls. iii-v, xvi, & xvii.

The completion of the memoir, of which the earlier portions have already been recorded.

FISERIUS, E. Beiträge zur Entwicklungsgeschichte von *Sciurus vulgaris*.

Verh. Ges. Wurzb. xxvi, pp. 103-122, pl. ii.

An epitome of the developmental history of this species.

FLEISCHMANN, A. Die einheitliche Plan der Placentarbildung bei Nagethieren. SB. Ak. Berlin, 1892, pp. 445-457, pl. ii.

It is concluded that the view of Ryder that the discoidal placenta of the Rodents is derived from the diminution of a zonary one, is well supported.

FREUND, P. Beiträge zur Entwicklungsgeschichte der Zahnanlagen bei Nagethieren. Arch. mikr. Anat. xxix, pp. 525-555, 2 pls.

Confirms previous observations as to the presence in *Lepus* of a rudimentary tooth in each jaw in front of the large incisor, which is regarded as a much-reduced deciduous predecessor of the latter. In the upper diastema of *Lepus* there is a distinct dental ridge, without enamel-germs; but the latter occur in *Sciurus*. It is concluded that the *Duplicidentata* present a very old type of the order, next to which comes the *Sciuro-morpha*. The view that Rodents are directly descended from Marsupials is supported. The memoir is translated in Ann. N. H. (6) xi, pp. 301-327 (1893).

GILIS, P. Note sur un Muscle Costo-Basilaire chez le Cochon d'Inde. CR. Soc. Biol. 1892, p. 1018.

POUSARGUES, E. DE. Note sur l'Appareil Génital Mâle du Cochon d'Inde (*Cavia cobaya*). Bull. Soc. Philom. (8) v, pp. 45-48.

ROBINSON, A. Some Points in the Early Development of *Mus musculus* and *Mus decumanus*; the Relation of the Yolk-sac to the Decidua and Placenta. Rep. Brit. Ass. 1891, pp. 690 & 691.

— Observations upon the Development of the Spinal Cord in *Mus musculus* and *Mus decumanus*; the Formation of the Septa and Fissures. T. c. pp. 691 & 692.

#### a. SCIURIDÆ.

STEPHENS, F. Notes on *Sciurus fossor*, Peale. Zoe, iii, pp. 118 & 119.

The author thinks it probable that the name *S. leporinus* will eventually have to be adopted for this Carolina Squirrel.

*Sciurus brookei*, n. sp., THOMAS, Ann. N. H. (6) ix, p. 253, and P. Z. S. 1892, p. 225, Mt. Dulit, N. Borneo.

*Sciurus lowi*, n. sp., THOMAS, t. c. p. 253, Lumbidan.

*Sciurus pryeri* and *hosei*, n. spp., THOMAS, op. cit. x, pp. 214 & 215, N. Borneo.

*Sciurus undulatus*, n. sp., TRUE, P. U. S. Nat. Mus. xv, pp. 465-467, E. Africa.

*Sciurus getulus*: POMEL, C.R. cxiv, pp. 53 & 54, has a note on this almost unknown African species.

*Xerospermophilus*, n. subg., MERRIAM, P. Biol. Soc. Washington, vii, p. 27; type, *Spermophilus mohavensis*.

*Ammospermophilus*, n. subg., MERRIAM, *l. c.* ; type, *S. leucurus*.

*Arctomys caudatus* : notes on its distribution by BÜCHNER, *Mél. biol.* xiii, pp. 309-324, where it is shown that this species has a wide range in Central Asia, extending to regions north of the Altai.

*Cynomys mexicanus*, n. sp., MERRIAM, *op. cit.* p. 157, Mexico.

†*Plesiarcotomys schlosseri*, n. sp., RÜTIMEYER, *Abh. Schw. pal. Ges.* xviii, p. 89, Up. Eocene, Switzerland.

### b. CASTORIDÆ.

MARTIN, H. T. *Castorologia* : the History and Traditions of the Canadian Beaver. London & Montreal : 1892, 8vo, 238 pp., illus.

Describes the Beaver from the historical, zoological, distributional, and commercial aspects ; with notices of other American Rodents, recent and fossil.

NEWTON, E. T. On a Skull of *Trogontherium cuvieri* from the Forest-bed of East Runton, near Cromer. *T. Z. S.* xiii, pp. 165-175, pl. xix.

The complete memoir, of which the abstract is quoted in *Zool. Rec.* xxviii, *Mamm.* p. 30.

### c. MURIDÆ.

HARTING, J. E. Plague of Field Voles in the South of Scotland. *Zool.* (3) xvi, pp. 161-173.

JENTINK, F. A. On a New Species of Rat from the Island of Flores. In Weber's *Zool. Ergebnisse einer Reise in Niederländisch Ost-Indien*, ii, pp. 78-83, pl. iii.

The species in question is the largest Rat yet known. The Indian *Mus setifer* is referred to *Nesocia*, which is regarded as a subgenus of *Mus* (*vide infra*).

*Gerbillus calurus*, hab. unknown, *G. gracilis*, Gambia, and *G. emini*, Wadelai, n. spp., THOMAS, *Ann. N. H.* (6) ix, pp. 76-79.

*Meriones tristrami*, n. sp., THOMAS, *t. c.* p. 148, Palestine.

*Dendromys nigrifrons*, n. sp., TRUE, *P. U. S. Nat. Mus.* xv, pp. 462-464, E. Africa.

*Steatomys bocagei*, n. sp., THOMAS, *Ann. N. H.* (6) x, p. 264, Angola. It is also noted that the proper name of *S. edulis* is *S. pratensis*.

*Rhithrodontomys*, Giglioli, 1873, should replace *Ochetodon*, Coues, 1874 ; MERRIAM, *P. Biol. Soc. Washington*, vii, p. 26.

*Sitomys*, Fitzinger, should replace the untenable *Hesperomys* ; MERRIAM, *t. c.* p. 27.

*Sitomys musculus*, n. sp., MERRIAM, *t. c.* p. 170, Mexico.

*Oryzomys bauri*, n. sp., J. A. ALLEN, *Bull. Am. Mus. Nat. Hist.* iv, pp. 48-50, Galapagos I.

- Neotoma alleni* and *tenuicauda*, n. spp., MERRIAM, P. Biol. Soc. Washington, vii, pp. 168-170, Mexico.
- Xenomys nelsoni*, n. g. & sp., MERRIAM, t. c. pp. 159-163, Mexico.
- Arvicola phæus*, n. sp., MERRIAM, t. c. pp. 171 & 172, Mexico.
- +*Bramus barbarus*, n. g. & sp., POMEL, C.R. cxiv, pp. 1159-1163, Pleistocene, Tunis. Allied to *Microtus*.
- Isomys pumilio*, n. varr. *diminutus* and *bechuanæ*, THOMAS, P. Z. S. 1892, pp. 551 & 552, Masailand and Bechuanaland.
- Mus chiropus*, n. sp., THOMAS, Ann. Mus. Genov. (2) x, p. 889 (1891), Karin Hills, Burma. See also t. c. p. 935, pl. xi.
- Mus* (*Dasymys*) *bentleyæ*, p. 179, Lower Congo, *M. daltoni*, p. 181, W. Africa, *M. burtoni*, pp. 182 & 183, Ashanti, n. spp., THOMAS, Ann. N. H. (6) x.
- Mus aquilus*, n. sp., TRUE, P. U. S. Nat. Mus. xv, pp. 460-462.
- Mus armandvillei*, n. sp., JENTINK, op. cit., Flores.
- Acomys wilsoni*, n. sp., THOMAS, Ann. N. H. (6) x, p. 22, Mombasa.
- Conilurus*, W. Ogilby, 1838, adopted by J. D. OGILBY, Cat. Australian Mammals (*suprà*, p. 12), p. 113, for *Hapalotis*, Licht., preoccupied.
- Pithechir melanurus*, JENTINK, Notes Leyd. Mus. xiv, pp. 122-126, pls. iii & iv, gives a description of this rare red-coloured Rat from Java.
- †*Trilophomys*, n. g., DEPÉRET, Mém. Soc. Géol.-Pal. iii, p. 121; to replace *Lophiomys*, Dep. [Zool. Rec. xxvii, Mamm. p. 37], preoccupied.

#### d. SPALACIDÆ.

- Spalax typhlus*, recorded by ANDERSON, P. Z. S. 1892, pp. 472-476, from Egypt, with notes on its habits.

#### e. GEOMYIDÆ.

- Geomys nelsoni*, *formosus*, and *gymnurus*, n. spp., MERRIAM, B. Biol. Soc. Washington, vii, pp. 164-167, Mexico. (The first of these is apparently identical with the undermentioned species, which has the priority.—R. L.)
- Geomys bulleri*, n. sp., THOMAS, Ann. N. H. (6) x, p. 196, Jalisco, Mexico.
- Perodipus*, FITZINGER, SB. Ak. Wien. 1867, p. 126, is stated by MERRIAM, P. Biol. Soc. Washington, vii, p. 26, to be the proper name of the genus termed *Dipodops* by Merriam, 1890 [see Zool. Rec. xxvii, Mamm. p. 37].
- Perognathus merriami*, n. sp., J. A. ALLEN, Bull. Am. Mus. Nat. Hist. iv, pp. 45 & 46, pl. iii, S.E. Texas.

#### f. DIPODIDÆ.

- Sminthus concolor*, n. sp., BÜCHNER, Mém. biol. xiii, pp. 268-271, Kansu, China.

## g. OCTODONTIDÆ.

BEDDARD, F. E. On the Brain and Muscular Anatomy of *Aulacodus*.  
P. Z. S. 1892, pp. 520-527, figs.

Describes the anatomy of the muscles and brain in detail, and that of the viscera more briefly; with figures of the hard palate and the brain.

†*Capromys columbianus*, n. sp., CHAPMAN, Bull. Am. Mus. Nat. Hist. iv, pp. 314 & 315, Subfossil, Cuba.

## h. LEPORIDÆ.

CHRISTY, M. On the Extirpation of the Rabbit in Australasia. Zool. (3) xvi, pp. 377-388.

In the course of this article the author alludes to the remarkable variation in the numbers of *Lepus americanus* in the north-west of Canada; the animals being apparently attacked by an epidemic.

LATASTE, F. À propos de Lapins Domestiques Vivant en Liberté dans l'Îlot de l'Étang de Cauquenes (Colchagua). Act. Soc. Chili, ii, pp. 210-222.

The author discusses the bearings of this case in regard to feral Rabbits in general. He concludes that domestic Rabbits run wild, never revert to the original wild race, nor do they ever form a new species. Generally such feral Rabbits tend to lose individual variations, and to form a more or less uniform race.

*Lepus cuniculus*: a wild Albino recorded by DE KERVILLE, Bull. Soc. Rouen, 1891, pp. 61 & 62. For formula of milk-dentition, see Woodward, *infra*, p.

*Lepus sinensis*, n. var. *coreanus*, THOMAS, Ann. N. H. (6) ix, pp. 146 & 147, Corea.

## 6.—UNGULATA.

TAEKER, J. Zur Kenntniss der Ontogenese bei Ungulaten. Dorpat: 1892, 8vo, 27 pp., 4 pls.

An elaborate treatise on the mode of formation and development of the cheek-teeth of the Ungulates. The forms described are the Horse, the Pig, *Dorcatherium*, the Elk, the Roe, the Sheep, and the Ox. It is concluded that all selenodont types show an initial bunodont condition. In all forms cones are first developed on the crowns of the molars, which in the bunodont types tend to assume a pyramidal form, and unite with one another at their bases; while in the selenodonts they take a crescent shape. The accessory column and cingulum in the latter are of secondary origin. The more complicated types of selenodont molars result from

additions of new elements to the original cones, such additions being added in the upper molars to the paracone, and not, as has been supposed, to the protocone. In selenodonts it is the antero-external cone which first makes its appearance, and it is accordingly urged that this, instead of the inner cone, ought to be called the protocone.

#### A.—PROBOSCIDEA.

HICKS, H. On the Discovery of Mammoth and other Remains in Endsleigh Street, &c. Q. J. Geol. Soc. xlviii, pp. 453-467.

It is concluded that the Mammoth lived very early in the Glacial period.

HOWORTH, SIR H. H. The Mammoth and the Glacial Drift. Geol. Mag. (3) ix, pp. 250-258 & 396-405.

The author endeavours to prove that the Mammoth is of pre- rather than post-glacial age.

MARTIN, K. Mammuthreste aus Nederland. JB. Mineral. 1892, i, pp. 45-48.

MÖBIUS, K. Die Behaarung des Mammuths und der Lebenden Elephanten, vergleichend untersucht. SB. Ak. Berlin, 1892, pp. 527-538, pl. iii.

Records the existence in living Elephants of a remnant of the woolly coat of the Mammoth.

POHLIG, H. Monographie des *Elephas antiquus*; Nachträge zur Dentition des *Elephas antiquus*. N. Acta Ac. L.-C. Nat. cur. lvii, pp. 260-466, pls. and text, figs.

The completion of the monograph quoted in Zool. Rec. xxv, *Mamm.* p. 43.

STEFANESCU, G. On the Existence of the *Dinotherium* in Roumania. Bull. Geol. Soc. Am. iii, pp. 81-83.

†*Mastodon longirostris* from Lahr, ECK, JB. Mineral, 1892, i, p. 151.

†*Mastodon successor*, n. sp., COPE, P. Ac. Philad. 1892, p. 227, Up. Tertiary, Texas.

†*Mastodon giganteus*, restored by MARSH, Am. J. Sci. (3) xlv, p. 350, pl. viii.

#### B.—†AMBLYPODA.

##### a. †CORYPHODONTIDÆ.

OSBORN, Bull. Am. Mus. Nat. Hist. iv, pp. 120-122, shows that while the fore-foot was of the semi-digitigrade type of the Elephant, the pes was truly plantigrade.

EARLE, C. Revision of the Species of *Coryphodon*. Bull. Am. Mus. Nat. Hist. iv, pp. 149-166, figs.

It is concluded that *Bathmodon* and *Metalophodon* are synonyms of *Coryphodon*, and that there are 8 American species of the latter, together with 1 each of *Manteodon* and *Ectacodon*. The cusps of the molars are homologized with those of other Ungulates.

### C.—HYRACOIDEA.

#### b. PROCAVIIDÆ.

THOMAS, O. On the Species of the *Hyracoidea*. P. Z. S. 1892, pp. 50-76, pl. iii.

After a careful revision of all the known species, it is concluded that it appears impossible to refer the Hyraces to more than a single genus, for which the name *Procavia* is adopted. 14 species (one of which is new), and 4 varieties are recognized, so far as available material admits of forming a final conclusion. These species are defined, and their distribution described, with the aid of a map. The skull of *P. pallida* is figured.

WOODWARD, M. F. On the Milk-Dentition of *Procavia (Hyrax) capensis* and of the Rabbit, with remarks on the relation of the Milk and Permanent Dentitions of the *Mammalia*. T. c. pp. 38-49, pl. ii.

It is concluded that in the Hyrax the milk-dentition is  $i \frac{3}{2}$ ,  $c \frac{1}{1}$ ,  $mm \frac{4}{4}$ , and the permanent  $i \frac{1}{2}$ ,  $c \frac{0}{0}$ ,  $p \frac{4}{4}$ ,  $m \frac{3}{3}$ . The upper milk-canine may, however, sometimes be retained in the permanent series. In the Rabbit the formula of the milk-teeth is found to be  $i \frac{2}{1}$ ,  $mm \frac{3}{2}$ . The common Hare and the Rabbit are the only known Rodents with deciduous incisors, while the Rabbit is peculiar in having milk-predecessors to both incisors.

*Procavia latastei*, n. sp., THOMAS, t. c. p. 69, Senegal.

*Procavia stuhlmanni*, n. sp., MATSCHIE, SB. nat. Fr. 1892, pp. 110-112, Victoria Nyanza.

*Dendrohyrax validus*: skull figured by TRUE, P. U. S. Nat. Mus. xv, pl. lxxv.

### D.—+CONDYLARTHRA.

MARSH, O. C. A New Order of Extinct Eocene Mammals. Am. J. Sci. (3) xliii, pp. 445-449, figs.

Regards *Meniscotherium* and a form described as *Hyracops* as indicating a new order, allied to the *Hyracoidea*, but presenting very generalized features in the dentition and feet; the digits terminating neither in claws nor in hoofs. From this character the name *Mesodactyla* is proposed. The paper is criticized by COPE, Am. Nat. xxvi, pp. 411 &

412, who doubts whether *Hyracops* is distinct from *Meniscotherium*, and confirms his previous reference of the latter to the *Condylarthra*.

OSBORN, H. F. Is *Meniscotherium* a Member of the *Chalicotheroidea*?  
Am. Nat. xxvi, pp. 507-509, figs.

The question is provisionally answered in the affirmative; *Meniscotherium* being perhaps the ancestor of *Chalicotherium*.

### c. †PHENACODONTIDÆ.

†*Meniscodon picteti*, n. sp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 10, Up. Eocene, Switzerland. The Genus *Meniscodon*, Rüt., dates from 1888, but is quoted in Zool. Rec. xxv, *Mamm.* p. 45, as being a misprint for *Meniscotherium*.

### d. †MENISCOTHERIIDÆ.

†*Hyracops socialis*, n. g. & sp., MARSH, Am. J. Sci. (3) xliii, pp. 446 & 447, Low. Eocene, New Mexico.

## E.—PERISSODACTYLA.

The following classification is proposed by OSBORN, Bull. Am. Mus. Nat. Hist. iv, p. 92 :—

Buno-selenodont. .	<i>Titanotheriidae</i> . .	<i>Palaeosyopinae</i> . .	<i>Palaeosyops</i> .
		<i>Titanotheriinae</i> . .	<i>Titanotherium</i> .
Lopho-selenodont. .	<i>Equidae</i> . . . . .	<i>Hyracotheriinae</i> . .	<i>Hyracotherium</i> .
		<i>Anchitheriinae</i> . .	<i>Anchitherium</i> .
		<i>Equinae</i> . . . . .	<i>Equus</i> .
Sub-lophodont . . .	<i>Tapiridae</i> . . . . .	<i>Systemodontinae</i> .	<i>Systemodon</i> .
		<i>Tapirinae</i> . . . . .	<i>Tapirus</i> .
Transitional . . . .	<i>Helaletidae</i> . . . . .		<i>Helaletes</i> .
	<i>Lophiodontidae</i> . .		<i>Lophiodon</i> .
Lophodont . . . . .	<i>Hyracodontidae</i> .	<i>Hyrachyinae</i> . . .	<i>Hyrachyus</i> .
		<i>Hyracodontinae</i> . .	<i>Hyracodon</i> .
		<i>Triplopodinae</i> . .	<i>Triplopus</i> .
	<i>Amynodontidae</i> . .		<i>Amynodon</i> .
	<i>Rhinocerotidae</i> . .	<i>Aceratheriinae</i> . .	<i>Aceratherium</i> .
		<i>Diceratheriinae</i> . .	<i>Diceratherium</i> .
		<i>Rhinocerotinae</i> . .	<i>Rhinoceros</i> .
		<i>Elasmotheriinae</i> .	<i>Elasmotherium</i> .

*Systemodon* is regarded as an ancestral Tapir (*t. c.* p. 124), and is distinguished from *Hyracotherium* and the equine line by the approximation of the first lower premolar to the canine.

## e. †LOPHIODONTIDÆ.

OSBORN, Am. Nat. xxiv, pp. 763-765, considers that the European forms included under the genus *Lophiodon* are really referable to three distinct families. The more typical forms, which might be retained in *Lophiodon*, have no representatives in America, but the others seem allied to transatlantic types, as indicated in the following table:—

*L. isselensis, parisiensis,* } = *Lophiodon* — *Lophiodontidæ*.  
*tapiroides.*

*L. annectans* = *Isectolophus* -- *Tapiridæ*.

*L. cartieri* = *Hyrachyus* — *Hyracodontidæ*.

*L. rhinoceroïdes* = *Amyrnodon* — *Rhinocerotidæ*.

†*Lophiodon annectans*, n. sp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 34, Up. Eocene, Switzerland.

†*Propalæotherium minutum*, n. sp., RÜTIMEYER, t. c. p. 35, *ibid*.

## f. EQUIDÆ.

CIACCIO, G. V. Sur une Étrange et Remarquable Particularité de Structure observée dans le Cornée d'un Cheval. Arch. Ital. Biol. xvii, pp. 295-297.

COPE, E. D. On the Permanent and Temporary Dentitions of certain Three-toed Horses. Am. Nat. xxvi, pp. 942-944, pls. xxv & xxvi.

The changes in the upper molars of *Protohippus placidus* are pointed out; in the early state the dentition is that of *Hippotherium*, and it is not till middle life that the protocone fuses with the paracone to form the typical *Protohippus* molar. It is added that in all the group the milk-dentition is much simpler than the permanent one; the milk-molars approximating to the permanent molars of *Anchitherium*.

MARSH, O. C. Recent Polydactyle Horses. Am. J. Sci. (3) xliii, pp. 339-354, figs.

Describes and figures feet of several existing Horses having supernumerary digits, which are regarded as indicating reversion to primitive polydactyle forms. A general survey of the extinct North American Perissodactyles allied to the Horse is appended, with illustrations of the foot-structure. In the course of this the new name *Hippops* is suggested for the undiscovered pentadactyle ancestor of the Horse; and it is also stated that *Phenacodus*, Cope, should be replaced by the earlier *Helohyus*, Marsh. Criticized by COPE, Am. Nat. xxvi, pp. 410 & 411, who states that *Helohyus* was never defined.

POMMEROL, F. Sur un Petit Cheval Quaternaire trouvé dans la Limagne.

C.R. Ass. Fr. Sci. xix, pt. 2, pp. 567-573, figs.

A replica of the paper quoted in Zool. Rec. xxvii, *Mamm.* p. 41.

SCHÖNLAND, S., *Nature*, xlv, pp. 6 & 7, confirms the statement as to the coloration of the Zebra being indistinguishable in moonlight from surrounding objects, and adds that it is likewise protective in daylight.

TROUESSART, E. L. The Fiction of the American Horse, and the Truth on this Disputed Point. *Science*, xx, pp. 128 & 129.

It is concluded that the statement as to the occurrence of Horses in La Plata at the time of the discovery of the New World is unfounded. Some observations are added on fossil species.

VAUGHAN, T. *Strangeway's Veterinary Anatomy*. 4th edition. Edinburgh: 1892, 8vo, 601 pp., illustrated.

†*Equus simplicidens*, n. sp., COPE, P. *Am. Phil. Soc.* 1892, p. 124, Pliocene (?), Texas.

*Equus boehmi*, n. sp., MATSCHIE, SB. *nat. Fr.* 1892, p. 131, German East Africa.

#### g. †PALÆOTHERIIDÆ.

†*Paloplotherium magnum*, n. sp., RÜTIMEYER, *Abh. Schw. pal. Ges.* xviii, p. 19, Up. Eocene, Switzerland.

#### h. RHINOCEROTIDÆ.

LYDEKKER, R. Notes on Rhinoceroses, Ancient and Modern. *Field*, lxxix, p. 903, & lxxx, p. 38.

*Rhinoceros sinus*, note on by H. A. BRYDEN, *ibid.* lxxx, p. 84.

PAYLOW, (MADAME) M. Les *Rhinocерidæ* de la Russie, et le Developpement des *Rhinocерidæ* en general. *Bull. Mosc.* 1892, pp. 137-221, pls. ii-v.

After recording the occurrence of the Russian representatives of the family, the author enters into a long discussion as to the mutual relationships of the various species of *Rhinoceros*, *Aceratherium*, etc.; her views as to the phylogeny of the group being expressed in tabular form. It is considered that *R. antiquitatis* has no affinity with *R. sinus* and *R. platyrhinus*, but is allied to *R. leptorhinus*; while both *R. indicus* and *R. sondaicus* (*javanicus*) are derived from *R. sivalensis*, the latter through the bicorn *R. karnuliensis*. *Aceratherium croizeti*, of the European Oligocene, is referred to the American genus *Amynodon*, although the characteristic third upper molar is at present unknown. The Phosphorites of France also yield a species nearly allied to the American *Aceratherium occidentale*. The resemblance of *Lophiodon rhinoceroïdes* to the *Rhinocerotidæ* is referred to (*cf.* OSBORN, *suprà*, p. 40).

## i. †TITANOTHERIIDÆ.

EARLE, C. A Memoir upon the Genus *Palæosyops*, Leidy, and its Allies.

J. Ac. Philad. ix, pp. 267-388, pls. x-xiv.

The author concludes that the family *Lambdotheriidæ* should be abolished, and that *Palæosyops* and its allies should be included in the *Titanotheridæ*, of which they constitute a subfamily, the *Palæosyopinæ*. This subfamily is characterized by all the premolars being unlike the molars, whereas in the *Titanotherinæ* some of the former are molariform. The genera of the *Palæosyopinæ* are distinguished as follows :—

## I. All three incisors present in each jaw.

- A. External lobes of upper molars very oblique and shallow . . . . 1. *Lambdotherium*.
- B. External lobes of upper molars straight and deep.
  - a. Premaxillary symphysis short and round, last upper molar with two inner cones . . . . 2. *Limnohyops*.
  - Last upper molar with one inner cone . . . . . 3. *Palæosyops*.
  - b. Premaxillary symphysis elongate and narrow . . . . . 4. *Telmatotherium*.

II. Only two incisors in each jaw . . . . 5. *Haplacodon*.

The author has some doubts as to the propriety of separating *Limnohyops* and *Telmatotherium* from *Palæosyops*, and concludes that the relationship between the first and third is closer than that between the second and third. The abortion of one of the inner cones in the upper molars of *Limnohyops* is considered, as in the analogous instance of the *Rhinocerotidæ*, to indicate the greater specialization. As regards the succession in time of the genera of the whole family, the horned *Titanotherium* is Miocene, the hornless *Diplacodon* Uinta Eocene, *Telmatotherium*, *Palæosyops*, and *Limnohyops* are from the upper Bridger Eocene, while *Lambdotherium* is from the lower Bridger, and perhaps the underlying Wasatch. *Lambdotherium* is closely allied to the ancestral stock of the family, but the absence of  $p_{\overline{1}}$  may indicate that it is not the actual ancestor.

## INCERTÆ SEDIS.

## j. CHALICOTHERIIDÆ.

*Macrotherium grande*, n. var. *rhodanicum*, DEPÉRET, Arch. Mus. Lyon, v, p. 63, pls. ii-iv, Miocene, Rhone Valley (skull figured).

## F.—ARTIODACTYLA.

## k. BOVIDÆ.

LYDEKKER, R. Wild Oxen. Land and Water, lii, pp. 738-740 (1891), and liii, pp. 25, 53, 54, 79, & 80, woodcuts.

An illustrated popular account of all the living and some of the fossil species.

——. Wild Goats. Field, lxxix, pp. 312, 313, 355, 356, & 393.

A popular illustrated account of all the species.

NEHRING, SB. nat. Fr. 1892, pp. 129 & 130, has notes on the atlas and axis vertebræ of *Bos primigenius*.

SCLATER, P. L. On a New Antelope from Somaliland, and on some other Specimens of Antelopes from the same country. P. Z. S. 1892, pp. 98-102, pl. v, figs.

The new Antelope is a species of *Bubalis*, that generic name being adopted in place of *Alcelaphus*. The other species referred to are those mentioned in the following paper.

——. The Antelopes of Somaliland. Nat. Science, i, pp. 255-265, figs.

An account of all the Antelopes known to inhabit this region. The full list of the species from North Somaliland is now as follows, viz. :—

Swayne's Hartebeest . . .	<i>Bubalis swaynei</i> . . .	"Sig."
Salt's Antelope . . .	<i>Neotragus saltianus</i> . . .	"Sagaro."
Klipspringer . . .	<i>Oreotragus saltator</i> . . .	"Alikhud."
Waterbuck . . .	<i>Cobus</i> , sp. inc. . . .	
Sœmmerring's Gazelle .	<i>Gazella sœmmerringi</i> . . .	"Aoul."
Pelzeln's Gazelle . . .	" <i>pelzelni</i> . . .	"Dèro."
Speke's Gazelle . . .	" <i>spekei</i> . . .	"Dèro."
Clarke's Gazelle . . .	<i>Ammodorcus clarkei</i> . . .	"Dibatag."
Waller's Gazelle . . .	<i>Lithocranius walleri</i> . . .	"Gerenuk."
Beisa Antelope . . .	<i>Oryx beisa</i> . . .	"Baet."
Greater Kudu . . .	<i>Strepsiceros kudu</i> . . .	"Goriali Gôdir."
Lesser Kudu . . .	" <i>imberbis</i> . . .	"Arreh Gôdir."

SWAYNE, H. G. C. Field-Notes on the Antelopes of Northern Somaliland. P. Z. S. 1892, pp. 300-308.

THOMAS, O. On the Antelopes of the Genus *Cephalophus*. T. c. pp. 413-430.

A revision of all the species, which are considered to be 18 in number.

WARD, R. New African Antelopes. Field, lxxx, p. 84.

Notices and figures heads of *Oryx callotis*, *Bubalis jacksoni*, and *Connochætes albo-jubatus*.

- Bubalis swaynei*, n. sp., SCLATER, P. Z. S. 1892, p. 98, pl. v, Somaliland ; see also *t. c.* p. 257.
- Bubalis jacksoni*, n. sp., THOMAS, Ann. N. H. (6) ix, pp. 386 & 387, country between the Victoria Nyanza and the Naivasha.
- Bubalis leucoprymnus*, n. sp., MATSCHIE, SB. nat. Fr. 1892, p. 137, German East Africa.
- Damalis jimela*, n. sp., MATSCHIE, *t. c.* p. 135, *ibid.*
- Connochætes taurinus*, n. var. *albojubatus*, THOMAS, Ann. N. H. (6) ix, p. 387, Uganda.
- Oryx callotis*, n. sp., THOMAS, P. Z. S. 1892, pp. 195 & 196, pl. xiv, East Africa. Figured by TRUE, P. U. S. Nat. Mus. xv, pl. lxxvi.
- † *Antilope* (? *Nagor*) *maupasi*, n. sp., POMEL, C.R. cxv, pp. 213-216, Pleistocene, Algeria.
- Æpyceros melampus*, n. var. *johnstoni*, THOMAS, P. Z. S. 1892, pp. 553 & 554, Nyassaland.
- Cephalophus jentinki*, n. sp., THOMAS, *t. c.* p. 417, Liberia.
- Cephalophus dorsalis*, n. var. *castaneus*, THOMAS, *t. c.* p. 421, Cameroons.
- Cephalophus abyssinicus*, n. n., THOMAS, *t. c.* p. 427, to replace the inadmissible *C. madoqua*.
- Cephalophus aquinoctialis*, n. sp., MATSCHIE, SB. nat. Fr. 1892, p. 112, Victoria Nyanza.
- Cephalophus spadix*, figured by TRUE, P. U. S. Nat. Mus. xv, pl. lxxviii.
- Strepsiceros suara*, n. sp., MATSCHIE, *op. cit.* p. 135, German E. Africa.
- Antilope triangularis*, Günther (= *Doratoceros*, Lydekker), provisionally considered by NICOLLS and EGLINGTON (*suprà*, p. 12) to be founded upon abnormal horns of the Kudu.

### l. GIRAFFIDÆ.

MOEWES, F. Ueber die gegenwärtige Verbreitung der Giraffe im Süden des Sambesi. Zool. Gart. xxxiii, pp. 51-53.

- † *Libytherium macrusium*, n. g. & sp., POMEL, C.R. cxv, pp. 100-102, Pliocene, Algeria.

### m. CERVIDÆ.

CAMERON, A. G. The Value of the Antlers in Classification of Deer. Field, lxxix, pp. 625, 703, 741, 860, & 861, figs.

The author urges that antlers are of primary importance in the classification of the Deer, but that they must be studied from an evolutionary and palæontological point of view ; and that those of the first and second year are, in some respects, of more value than those of adult animals. It is considered that *Rangifer*, *Alces*, *Cervus*, and *Cariacus* all indicate primary branches of the family, which have had no connection with one another since antlers first originated, and hence that the component parts

of these antlers cannot be homologized. The brow-tine of *Cervus* is considered to be quite unrepresented in *Cariacus*, the vertically directed tine found in some species of the latter being regarded as distinct from a brow-tine. Hence the Deer are divided into *brow-antlered* and *fork-antlered* types. And it is further considered that Père David's Deer belongs to the second group, and should therefore be regarded as generically distinct from *Cervus*, under the title of *Elaphurus*.

LYDEKKER, R. The Deer of Asia. Land and Water, liii, suppl., Jan. 23, pp. x & xi, & pp. 130, 131, 164, 165, 192, 193, 221, 247, & 248.

POHLIG, H. Die Cerviden des Thüringischen Diluvial-Travertines, mit Beiträgen über undere diluviale und über recente Hirschformen. Palæontographica, xxxix, pp. 215-261, pls. xxiv-xxvii.

This forms the second fasciculus of the fauna and flora of the formation in question. The species include *Cervus giganteus*, *C. dama*, *C. elaphus*, *Alces machlis*, *Rangifer tarandus*, and *Capreolus caprea*. [Vide *infra*.]

POUSARGUES, E. DE. Sur un Anomalie des Pattes Anterieures d'une Biche (*Cervus xanthopygus*). Bull. Soc. Philom. (8) iv, pp. 95-97.

Describes and figures a horny growth near the carpus in this stag.

SCHULER, G. v. Ueber die Ursachen abnormer Geweihbildung bei den Hirscharten, insbesondere die Bildung von mehr als zwei Geweihstangen. JH. Ver. Württ. xlviii, pp. 135-178, pls. iii-vi.

Describes and figures a number of abnormal antlers of Deer, with a discussion of the mode of formation.

*Cervus elaphus*, n. var. *antiqui*, POHLIG, *op. cit.* p. 246, Pleistocene.

*Cervus cashmirianus*, n. var. *yarkandensis*, BLANFORD, P. Z. S. 1892, pp. 116 & 117, Yarkand.

†*Cervus giganteus*: A. NEHRING, SB. nat. Fr. 1892, pp. 3-8, describes a head of the variety *ruffi*, dredged from the Rhone near Worms. This specimen (figured in Deutsche Jäger-Zeitung, xviii, pp. 571-573) shows that the antlers, instead of extending horizontally, are directed upwards and outwards, like those of the Fallow Deer. In Verh. anthrop. Ges. 1892, pp. 125-127, the same author gives reasons for believing that the word *Schelch*, occurring in the "Niebelungen Lied," is not, as has been thought, applicable to this species, but probably refers either to the Elk or to a wild Stallion.

†*Cervus giganteus* (= *euryceros*), n. varr. *germanicæ* and *italicæ*, POHLIG, *op. cit.* pp. 220 & 228, Pleistocene.

*Cervus dama*, n. var. *gastaldii*, POHLIG, *op. cit.* p. 241, Pleistocene.

†*Cervus pachygenys*, n. sp., POMEL, C.R. cxv, pp. 213-216, Pleistocene, Algeria.

*Cervulus feæ*, figured by THOMAS, Ann. Mus. Genov. (2) x, pl. x.

*Alces machlis* (= *Cervus alces*), n. varr. *diluvii* and *europæ*, POHLIG, *op. cit.* pp. 236 & 237, Pleistocene.

+*Capreolus ruscinensis*, n. sp., DEPÉRET, Pliocene, Roussillon, France.

#### n. TRAGULIDÆ.

*Tragulus nigricans*, n. sp., THOMAS, Ann. N. H. (6) ix, p. 254, Balabac, Philippines.

+*Hyomoschus peneckeï*, n. sp., HOFMANN, JB. geol. Reichsanst. xlii, p. 72, pl. ii, figs. 4, 5, Miocene, Styria.

#### o. PROTOCERATIDÆ (INCERTÆ SEDIS).

OSBORN, H. F., & WORTMAN, J. L. Characters of *Protoceras* (Marsh), the New Artiodactyl from the Lower Miocene. Bull. Am. Mus. Nat. Hist. iv, pp. 351-372, figs. ; see also Nature, xlvii, pp. 321 & 322 (1893).

The authors describe a skull remarkable for the presence of a number of paired irregular bony processes, comparable to those of *Uintatherium*. Hornless (female) skulls of the same type were also obtained ; and it was found by comparison that both belonged to *Protoceras*, Marsh (Zool. Rec. xxviii, *Mamm.* p. 44). That genus must accordingly indicate a distinct family group of Artiodactyles; approximating, in some degree, to the *Tragulina* through *Leptomeryx*. The feet, however (of which specimens were discovered with the skulls) are of the inadapative modification, and there are important differences in the structure of the cranium. The resemblance of the male skull to that of *Uintatherium* is further increased by the presence of large sabre-like upper tusks.

#### p. CAMELIDÆ.

CRAGIN, F. W. Observations on Llama Remains from Colorado and Kansas. Amer. Geol. ix, pp. 257-260.

Restricting the term *Auchenia* to those forms in which the premolars are  $\frac{2}{1}$ , the author considers it doubtful whether any of the West American Llamas belong to that genus. The remainder of the paper is devoted to the description of specimens from the localities mentioned. *Auchenia hesternu*, Leidy, is provisionally referred to *Holomeniscus*.

+*Auchenia huerfanensis*, n. sp., CRAGIN, l. c. (?), Pliocene, Huerfano River, Colorado.

*Camelus bactrianus* : BLANFORD, P. Z. S. 1892, pp. 370 & 371, notices the skull and skin of a specimen shot by Major Cumberland in the neighbourhood of Yarkand; and concludes that all the examples found in that district are feral.

## g. †DICHODONTIDÆ.

†*Dichodon cartieri*, n. sp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 79, Up. Eocene, Switzerland.

†*Tetraselenodon kowalevskii*, recorded by RÜTIMEYER, t. c. p. 82, from same.

## r. ANOPLOTHERIIDÆ.

†*Xiphodontherium pygmæum* and *obliquum*, n. spp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, p. 74, Up. Eocene, Switzerland.

†*Xiphodontherium schlosseri*, n. sp., RÜTIMEYER, t. c. p. 75, *ibid.*

†*Mixtotherium gresslyi*, n. sp., RÜTIMEYER, t. c. p. 78, *ibid.*

LYDEKKER, R. On *Dacrytherium ovinum* from the Isle of Wight and Quercy Q. J. G. S. xlviii, pp. 1-4, pl. i.

Describes a cranium and mandible of *Dacrytherium cayluxi* from the Quercy Phosphorites, which proves the identity of this form with the *Dichobune ovina* of Owen, from the Oligocene of the Isle of Wight. The species should thus be known as *Dacrytherium ovinum*. It is shown that the mandible referred by Filhol to *D. cayluxi* belongs to another animal. *Hyopotamus picteti*, Lyd., is identified with *Dacrytherium* (see also RÜTIMEYER, *suprà*, p. 15).

## s. †CÆNOTHERIIDÆ.

†*Dichobune muelleri*, *langii*, p. 70, and *pygmæa*, p. 72, n. spp., RÜTIMEYER, Abh. Schw. pal. Ges. xviii, Up. Eocene, Switzerland.

## t. †ANTHRACOTHERIIDÆ.

†*Hyopotamus gresslyi*, n. var. *minor*, RÜTIMEYER, t. c. p. 61, *ibid.*

## u. CHÆROPOTAMIDÆ.

HOERNES, R. Zur Kenntniss der Milchbezeichnung der Gattung *Entelodon*, Aym. SB. Ak. Wien, 1892, Abth. ii, pp. 17-24, 1 pl.

Describes part of a mandibular ramus with the milk dentition, showing that the last milk-molar has the usual trilobed form.

## v. SUIDÆ.

NEHRING, A. Zwei Javanische Wildschweine des Berliner Zoologischen Gartens (wahrscheinlich *Sus longirostris*, Nehring). Zool. Gart. xxxiii, pp. 7-11.

—. Einige neue Notizen über die Langrüsselschweine (*Sus longirostris*) im Berliner Zoologischen Gartens. T. c. pp. 240-242.

Notices two pigs from Java in the Berlin Gardens, which may belong to *S. longirostris*, that form being intermediate between *S. barbatus* and *S. verrucosus*.

SUSSDORF, J. Der Hauer eines Suiden, ein interessanter Bodenseefund. JH. Ver. Württ. xlviii, pp. 238-247.

Describes a lower canine of *Sus scrofa* exhibiting a pathological peculiarity in structure.

† *Chæromorus pygmæus*, n. sp., DEPÉRET, Arch. Mus. Lyon, v, p. 87, pl. i, Miocene, Grive-St-Alban.

## 7.—CETACEA.

BEAUREGARD, H. Note sur Deux Échouements Récents de *Balenoptera musculus*. CR. Soc. Biol. 1892, pp. 202 & 203.

BENEDEN, P. J. VAN. Un Cétacé Fluvatile d'Afrique. Mém. Ac. Belg. (3) xxiii, pp. 350-355, 1 pl.

Note on *Sotalia teuszii*, with figure of skull.

BOUVIER, E. L. Sur un Échouement d'*Hyperoodon* à l'entrée de la Baie de Carentan. CR. Soc. Biol. 1892, pp. 835-838.

—. Observations Anatomiques sur l'*Hyperoodon rostratus*. Ann. Sci. Nat. (7) xiii, pp. 259-320, pls. vii & viii.

Describes, in detail, the external characters and visceral anatomy of a recently stranded specimen.

CAPELLINI, G. Un Delfinide Miocenico, Ossia il Supposto Uomo Fossile di Acquabona presso Arcevia nelle Marche. Atti (Mem. Rend.) Acc. Rom. (5) i, pp. 325-330.

It is considered that the specimen referred to belongs probably either to a *Schizodelphis* or a *Squalodon*.

GORJANOVIC-KRAMBERGER, D. O. Fosilnih Cetaceih Hrvatske i Kranjske. (De Fossilibus Cetaceis Croatiae et Carneoliae.) Rad jugoslav. akad. cxi, pp. 1-21, pls. i-iii.

A memoir in Croatian on fossil Cetaceans from Croatia and Carniola. The specimens are referred to *Champsodelphis*, *Platanista*, *Delphinapterus*, and *Mesocetus*; the two new species being mentioned below.

KÜKENTHAL, W. Mittheilungen über den Carpus des Weisswals (Die Bildung des Hamatums und das Vorkommen von Zwei und Drei Centralien). *Morph. JB.* xix, pp. 56-64, pl. iii.

The occurrence of two centralia is noticed in both *Delphinapterus* and *Monoceros*; and the morphological bearing of this feature, as well as the presence of five distal carpalia, fully discussed.

——. Ichthyosaurier und Wale. *JB. Mineral.* 1892, i, pp. 161-166.

The analogy between Ichthyosaurs and Whales is traced; and as it is probable that the former have descended from armoured reptiles, so the latter (from the discovery of traces of scutes with a fossil Dolphin and *Zeuglodon*) may have taken origin from Mammals furnished with a dermal armour.

——. *Sotalia teuszii*, n. sp., ein Pflanzenfressender (?) Delphin aus Kamerun. *Zool. Jahrb. Abth. f. Syst.* vi, pp. 442-446, pl. xxi.

LYDEKKER, R. On Zeuglodont and other Cetacean Remains from the Tertiaries of the Caucasus. *P. Z. S.* 1892, pp. 558-564, pls. xxxvi-xxxviii.

The specimens are from Eocene beds, and are referred to a new species of *Zeuglodon*, and to two representatives of the *Platanistidae*, one of which is regarded as indicating a new genus, while the other is not named. It is considered that the specimens help to confirm the view as to the Cetacean nature of *Zeuglodon* (*vide infra*).

MORENO, F. P. Noticias sobre algunos Cetáceos Fósiles y Actuales de la República Argentina. *Rev. Mus. la Plata*, iii, pp. 381-398, pls. viii-xi.

Describes a recent Cetacean referred to a new species of *Lagenorhynchus*, and two fossil crania provisionally assigned to the *Delphinidae* (*q. v.*).

POUCHET, G. Note sur la Baleine Observée par Nearque. *CR. Soc. Biol.* 1892, pp. 422 & 423.

Concludes that the Whale seen by Nearchus in the Persian Gulf was a *Megaptera*.

—— & BEAUREGARD, H. Note sur l'Ambre Gris. *T. c.* pp. 588-590.

——. Recherches sur le Cachalot. *N. Arch. Mus.* (3) iv, pp. 1-90, pls. i-xii.

A continuation of the elaborate monograph quoted in *Zool. Rec.* xxvi, *Mamm.* p. 48; the present part dealing with the anatomy of the head and brain.

SOUTHWELL, T. Notes on the Seal and Whale Fishery. Zool. (3) xii, pp. 100-105.

TURNER, SIR W. The Lesser Rorqual (*Balenoptera rostrata*) in the Scotch Seas, with observations on its Anatomy. P. R. Soc. Edinb. xix, pp. 36-75, 2 pls.

Describes a female stranded at Granton in 1888, and tabulates all the examples hitherto recorded from the Scotch coasts.

— Notes on some of the Viscera of Risso's Dolphin (*Grampus griseus*). J. Anat. Phys. (2) vi, pp. 258-270.

#### a. PHYSETERIDÆ.

*Mesoplodon bidens (sowerbiensis)*. FISCHER, C.R. cxiv, pp. 1283-1286, describes the osteology of a specimen stranded at Cap Breton, August, 1888. TEGETMEIER, Field, lxxx, p. 1003, records the stranding of another specimen on the Norfolk coast, Dec. 18th, 1892.

*Hyperoodon rostratus*: BOUVIER's notes, quoted in Zool. Rec. xxviii, *Mamm.* p. 48, translated in Ann. N. H. (6) ix, pp. 484-486.

#### b. PLATANISTIDÆ.

†*Iniopsis caucasica*, n. g. & sp., LYDEKKER, P. Z. S. 1892, p. 562, Eocene, Caucasus.

†*Platanista croatica*, n. sp., GORJANOVIC-KRAMBERGER, Rad jugoslav. akad. cxi, p. 12, Tertiary, Croatia.

†*Champosodelphis carniolicus*, n. sp., GORJANOVIC-KRAMBERGER, *t. c.* p. 6, Tertiary, Carniola.

#### c. DELPHINIDÆ.

*Grampus griseus*: Sir W. TURNER, P. Phys. Soc. Edinb. xi, pp. 1-6, describes one of six examples caught at Hillswick, Shetland, September, 1889. Another captured on the Solway, September 30th, 1892, recorded in Land and Water, liv, p. 405.

*Delphinus dussumieri*, n. n., BLANFORD, Mammals of British India, p. 588 (1891), for *D. longirostris*, Dussumier, *nec* Gray. [Omitted from Zool. Rec. xxviii.]

*Sotalia teuszii*, n. sp., KÜKENTHAL, Zool. JB. vi, pp. 442-446, pl. xxi, Cameroon district. Believed to be herbivorous.

*Lagenorhynchus floweri*, n. sp., MORENO, Rev. Mus. La Plata, iii, p. 383, pls. viii & ix.

- †*Mesocetus poucheti*, n. g. & sp., MORENO, *t. c.* p. 393, pl. x, Tertiary, Argentina.  
 †*Notocetus vanbenedeni*, n. g. & sp., MORENO, *t. c.* p. 395, *ibid.*  
 †*Orcella fluminalis*, identified with *O. brevirostris*; THOMAS, *Ann. Mus. Genov.* (2) x, p. 39.

d. †ZEUGLODONTIDÆ.

- †*Zeuglodon caucasicus*, n. sp., LYDEKKER, *P. Z. S.* 1892, p. 559, Eocene, Caucasus.

## 8. SIRENIA.

- LYDEKKER, R. On a remarkable Sirenian Jaw from the Oligocene of Italy, and its bearing on the Evolution of the *Sirenia*. *P. Z. S.* 1892, pp. 77-83, woodcut.

Describes part of an upper jaw of a Sirenian from the Tertiaries of Northern Italy, containing milk-teeth. As these teeth showed a masked selenodont structure, it is urged that the specimen indicates the descent of the *Sirenia* from Selenodont Artiodactyle-like Ungulates. It was incidentally shown that *Halitherium veronense*, Zigno, from the same deposits, belongs to *Prorastoma*, Owen.

- WALDEYER, W. Ueber den feineren Bau des Magens und Darmkanales von *Manatus americanus*. *SB. Ak. Berlin*, 1892, pp. 79-85.

## 9. EDENTATA.

- BALLOWITZ, E. Das Schmelzorgan der Edentaten, seine Ausbildung im Embryo, und die Persistenz seines Keimrandes bei dem erwachsenen Thier. *Arch. mikr. Anat.* xl, pp. 133-156, pls. vi & vii.

The existence of an enamel-organ in the embryo of *Dasybus* is confirmed; and it is now shown that a portion of this persists as an epithelial ring at the base of the pulp-cavity.

- RÖSE, C. Ueber rudimentäre Zahnanlagen der Gattung *Manis*. *Anat. Anz.* vii, pp. 618-622.

Records rudimentary dental structures in embryos of *Manis tricuspis* and *M. javanica*.

†MEGATHERIIDÆ.

For presence of enamel in teeth of earlier forms, see AMEGHINO, *suprà*, pp. 2 & 3.

## †GLYPTODONTIDÆ.

The alleged existence of a plastron is stated by AMEGHINO (*suprà*, p. 3) to be incorrect.

## 10.—MARSUPIALIA.

For list of Australian forms, see OGILBY, *suprà*, p. 12.

COPE, E. D. On the Habits and Affinities of the New Australian Mammal, *Notoryctes typhlops*. Am. Nat. xxvi, pp. 121–128, pl. ix.

Concludes that the affinities of this animal are rather with Insectivores than Marsupials, and that its nearest ally is probably *Chrysochloris*.

DUN, W. S. Notes on the Teeth known as *Sceparnodon ramsayi*, Owen (*Phascolonus gigas*, Lydekker). Rec. Geol. Surv. N.S.W. iii, pp. 25–28, pl. vi.

New specimens from Bingera serve to disprove some of the views of De Vis as to the lower incisors of this type; and thus leave it still probable that *Sceparnodon* may be identical with *Phascolonus*.

GADOW, H. On the Systematic Position of *Notoryctes typhlops*. P. Z. S. 1892, pp. 361–370, figs.

After an exhaustive consideration of the hard and soft parts, the author concludes that *Notoryctes* is an undoubted polyprotodont Marsupial, and that its relationship is nearer to the *Dasyuridæ* than to the *Peramelidæ*.

LECHE, Biol. Fören. iv, pp. 1 & 2, likewise has a note on the affinities of the same genus.

RÖSE, C. Ueber die Zahnentwicklung der Beuteltiere. Anat. Anz. vii, pp. 639–650 & 693–707, figs.

From an examination of a series of fœtal specimens, it is concluded that the teeth of Marsupials are developed in the same manner as in other Mammals; the anterior ones being diphyodont, while the true molars are produced as lateral outgrowths, with the exception of the last premolar. The germs of the replacing teeth are, however, aborted, and the permanent teeth consequently belong to the milk-series. In some cases, as in *Didelphys*, the last premolar takes a place among the milk-molars, without displacing one of the latter; although it generally succeeds a milk-tooth in the ordinary manner. It is also considered that the outermost upper incisor of *Perameles*, *Macropus*, and *Phalangista* belongs to the second series, which takes its place alongside those of the first series without any displacement. Further evidence is also obtained in support of the view that the premolars and molars are formed by the coalescence of three or more simple conical teeth.

SYMINGTON, J. On the Organ of Jacobson in the Kangaroo and Rock-Wallaby (*Macropus giganteus* and *Petrogale penicillata*). J. Anat. Phys. xxvi, pp. 371-374, pl. x.

It is shown that in *Ornithorhynchus* the cartilage of the organ in question, in the greater part of its extent, forms a complete tube, from which passes, internally, a turbinate process; no indications of such a process occurring in the *Metatheria* and *Eutheria*. Further, in *Ornithorhynchus* the organ, which is very large, extends forwards as well as backwards beyond its opening into the naso-palatine foramen, while in other Mammals the opening, which may be either into that foramen or into the nasal cavity, represents the anterior end of the organ.

— The Cerebral Commissures in the *Marsupialia* and *Monotremata*. T. c. pp. 22-84, pls. i-iii, figs.

It is concluded that the cerebral commissures of Monotremes and Marsupials may be distinguished from those of Eutherians by the following characters:—(1) The anterior commissure is as large as, and generally much larger than, any other transverse commissure of the cerebrum, and it unites the whole of the cortex of the two hemispheres, except the gyri dentati and hippocampi majores. (2) They have no true corpus callosum. (3) The superior transverse commissure is simply one for the gyri dentati and hippocampi majores. In the Eutherians, on the other hand, the following conditions obtain:—(1) The anterior commissure is much smaller than the other transverse commissures, and it never extends to the cortex on the upper surface of the cerebral hemispheres, or to that on the upper part of the inner surface of the same. (2) A true corpus callosum, and likewise (3) a hippocampal commissure are present.

ZIETZ, A. List of South Australian Species of Kangaroos and Wallabies. Tr. R. Soc. S. Austr. xv, pp. 18 & 19.

#### a. PHALANGERIDÆ.

*Acrobates pulchellus*, n. sp., ROTHSCILD, P. Z. S. 1892, p. 546, Island in Dutch New Guinea.

#### b. †AMPHITHERIIDÆ.

†*Telacodon laevis*, n. g. & sp., MARSH, Am. J. Sci. (3) xliii, p. 258, Cretaceous, Wyoming.

†*Batodon tenuis*, n. g. & sp., MARSH, l. c. *ibid*.

#### c. INCERTÆ SEDIS.

†*Stagodon validus*, n. sp., MARSH, Am. J. Sci. (3) xliii, p. 256, Cretaceous, Wyoming.

† *Thlæodon paslanicus*, n. g. & sp., COPE, Am. Nat. xxvi, pp. 758-760, Cretaceous, Wyoming. Founded upon an imperfect mandible, in which the angle is wanting, considered to belong either to a Marsupial or a Monotreme.

## 11. MONOTREMATA.

BAUR, Am. Nat. xxvi, pp. 72 & 435, records the absence of zygophyses in the cervical vertebræ as a new fact. CARUS, *t. c.* p. 965, points out that Owen had long since noticed the fact of their absence, except in the atlas of *Echidna*.

HILL, A. The Cerebrum of *Ornithorhynchus paradoxus*. P. R. Soc. lii, pp. 163 & 164. [Abstract.]

Although the brain is distinctly Mammalian, it presents certain peculiar features connected with the rhinencephalon, hippocampus, and cerebral commissures, which have not hitherto been noticed. The olfactory bulb has a thin stalk, and is quite free from the frontal portion of the hemisphere. The hippocampus is very large, and lies entirely dorsal of the velum interpositum, while it is continued forwards to the extreme front of the brain, thus forming with the rhinencephalon a loop open in front. No commissural fibres cross the *incisura pallii longitudinalis* dorsally of the hippocampus; and it is concluded such fibres as do cross from one hemisphere to another do not represent a true corpus callosum. Exclusive of the *incisura rhinalis* and *dentary fossa*, which scarcely come under this category, the cortex is completely destitute of convolutions.

TURNER, Sir W. The Cerebral Hemispheres of *Ornithorhynchus paradoxus*. J. Anat. Phys. (2) vi, pp. 358-361.

The author finds that the rhinencephalon is more highly organized and larger in *Echidna* than in *Ornithorhynchus*; while the pallial part is on a larger and more complicated plan. Moreover, the cerebellum is likewise a larger organ, with its surface more minutely fissured in *Echidna*. Hence it is concluded that the brain of the latter is decidedly more highly organized than that of *Ornithorhynchus*.

### a. ECHIDNIDÆ.

*Echidna aculeata*: remarks on young specimens; W. N. PARKER, Rep. Brit. Ass. 1891, p. 693.

*Proechidna nigroaculeata*, n. sp., ROTHSCHILD, P. Z. S. 1892, p. 545, Dutch New Guinea.

12. †*MULTITUBERCULATA*.

†*Cimolodon parvus*, n. sp., O. C. MARSH, Am. J. Sci. (3) xliii, p. 254,  
Cretaceous, Wyoming.

†*Cimolodon agilis*, n. sp., MARSH, t. c. p. 255, *ibid*.

†*Allacodon fortis*, n. sp., MARSH, l. c. *ibid*.

†*Allacodon rarus*, n. sp., MARSH, t. c. p. 256, *ibid*.

†*Oracodon conulus*, n. sp., MARSH, l. c. *ibid*.



### III. A V E S.

BY

R. BOWDLER SHARPE, LL.D.

---

THE year 1892 has been rendered remarkable by the publication of Dr. Gadow's Classification of Birds, by Professor Mivart's popular Introduction to Ornithology, and by the excellent work by Captain Charles Bendire on the Life-histories of American Birds. The zoo-geographical work of Dr. C. Hart Merriam and Mr. J. A. Allen, though based upon studies of the *Mammalia*, possesses the deepest interest for Ornithologists. The year will also probably be notable for the foundation in this country of the 'British Ornithologists' Club,' whose monthly 'Bulletin' contains a record of most important work, while the 'Ibis' is more flourishing than ever.

---

#### ARRANGEMENT OF RECORD.

I.—TITLES OF SEPARATE WORKS, AND OF THE MORE IMPORTANT PAPERS PUBLISHED IN PROCEEDINGS OF SOCIETIES, &c.

II.—FAUNISTIC.

III.—ANATOMY AND MISCELLANEOUS.

IV.—SYSTEMATIC.

---

#### I.—TITLES.\*

ALBARDA, N. Ueber das Vorkommen seltener Vögel in den Niederlanden. J. f. O. 1892, pp. 417-431.

ALESSI, S. Briefliches aus Tunisien. T. c. pp. 313-317.

ALFARO, A. Resena de las principales Aves que habitan la parte superior del Volcán de Poás. An. Mus. Costa Rica, iii, pp. 160 & 161.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

ALLEN, C. S. [See *Pandiones*, p. 39.]

ALLEN, J. A. Notice on some Venezuelan Birds collected by Mrs. H. H. Smith. Bull. Am. Mus. iv, pp. 51-56.

[*Tanagridæ*, p. 52 ; *Tyrannidæ*, p. 61 ; *Piciformes*, p. 49.]

— On a Collection of Birds from Chapada, Matto Grosso, Brazil, made by Mrs. H. H. Smith. Part II. *Tyrannidæ*. *T. c.* pp. 330-350. [Part I, cf. Zool. Rec. xxviii, *Aves*, p. 2.]

— The Geographical Distribution of North American Mammals. *T. c.* pp. 199-243, pls. v-viii [maps].

— [See also *Ralliformes*, p. 30 ; *Piciformes*, p. 49.]

ANONYMOUS. Fourth Supplement to the A. O. U. Check-list of North-American Birds. Auk, ix, pp. 105-108.

ANTHONY, A. W. Birds of South-western New Mexico. Auk, ix, pp. 357-369.

APLIN, O. V. Notes on Birds seen in Switzerland. Zool. 1892, pp. 3-14 & 65-73.

— Supplementary Notes on the Birds of Oxfordshire. *T. c.* pp. 241-258.

— Notes from a Winter Journal, 1890 & 1891. Mid. Nat. xv, pp. 40-43 & 58-62.

[*Emberizinae*, p. 53 ; *Laniidæ*, p. 55 ; *Cinclidæ*, p. 58.]

ATTWATER, H. P. List of Birds observed in the vicinity of San Antonio, Bexar County, Texas. Auk, ix, pp. 337-345.

AUSTEN, E. E. On Bird-life at Heidelberg. Rep. Rugby Soc. 1891, pp. 36-43.

BAKER, E. C. S. [See *Pycnonotidæ*, p. 59 ; *Troglodytidæ*, p. 58.]

BALDAMUS, E. Das Leben der europäischen Kuckucke, nebst Beiträgen zur Lebenskunde der übrigen parasitischen Kuckucke und Stärlinge. Berlin : 1892, 224 pp., viii pls.

BARBOZA DU BOCAGE, J. V. Additions et Corrections à l'Ornithologie d'Angola. I. J. Sci. Lisb. (2) viii, pp. 248-264.

[*Irrisoridæ*, p. 43 ; *Nectariniidæ*, p. 54.]

— Aves do Sertão de Benguela. J. Sci. Lisb. (2) vii, pp. 157-172.

[*Turdidæ*, p. 57.]

— Subsídios para a Fauna da Guiné Portuguesa. *T. c.* pp. 179-184.

— Aves de Dahomé. *T. c.* pp. 185-187.

BAUR, G. Besuch der Galapagos-Inseln. Biol. Centralbl. xii, pp. 221-250.

BECKWITH, W. Shropshire Birds. Tr. Shropshire Soc. 1892, pp. 183-198.

BEDDARD, F. E. Animal Coloration: an account of the principal facts and theories relating to the colours and markings of animals. London : 8vo, 1892, pp.

[See also *Plotidæ*, p. 36.]

- BENDIRE, C. Life Histories of North American Birds, with special reference to their breeding, habits, and eggs. U. S. Nat. Mus. Special Bulletin, No. i. Washington: 1892, 4to, pp. viii & 416, pls. i-xii.  
 [*Galliformes*, p. 25; *Columbiformes*, p. 28; *Accipitriformes*, p. 37; *Striges*, p. 39.]
- BERLEPSCH, H. VON. Die Vernichtung unserer Vögel im Süden und der daraus resultirende Schaden. C.R. ii, Congr. Orn. Intern. ii, pp. 179-189.
- . Die Vögel der Insel Curaçao, nach einer von Herrn Ernst Peters daselbst angelegten Sammlung. J. f. O. 1892, pp. 61-104.  
 [*Cærebidæ*, p. 52; *Falconidæ*, p. 39; *Odontophorinæ*, p. 28.]
- . [See also BOUCARD & BERLEPSCH.]
- & STOLZMANN, J. Résultats des recherches ornithologiques faites au Pérou par M. Jean Kalinowski. P. Z. S. 1892, pp. 371-411.  
 [*Tanagridæ*, p. 52; *Icteridæ*, p. 51; *Tyrannidæ*, p. 62; *Dendrocopaptidæ*, p. 62.]
- & ——. [See also *Crypturiformes*, p. 25; *Trochili*, p. 62; *Furnariinæ*, p. 62.]
- BESSE, C., & ST. MAURICE, ABBAYE DE. Liste des Oiseaux palmés du Valais. Bull. Soc. Murith. livr. xvi-xviii, pp. 36-42 (1890).
- BIRD, M. Bird Life of the Norfolk Broads. Field Club, iii, pp. 1-4, 20-24, 36-60, 52-55, 65-69, 86-88, 104-108, 116-120, 133-138, 151-154, 164-167, & 177-180.
- BLAAUW, F. E. [See *Plataleæ*, p. 34.]
- BLAKISTON, T. W. [THE LATE]. Obituary Notice. Ibis, 1892, pp. 190 & 191; Auk, ix, pp. 75 & 76.
- BLASIUS, R. Zur Oologie. C.R. ii, Congr. Orn. Intern. ii, pp. 148-152.
- BLOMEFIELD, L. Remarks on the Distribution and Movements of British Animals and Plants, in Past and Present Times, as instanced in the Nightingale and some other cases. P. Bath Nat. Hist. Club, 1892, pp. 185-199.
- BOCAGE. [See BARBOZA DU BOCAGE.]
- BOLAM, G. Ornithological Notes. Hist. Berwick Nat. Club, 1890-91, pp. 345-368.
- BOLLES, F. [See *Piciformes*, p. 49.]
- BONVALOT, G. De Paris au Tonkin a travers Le Tibet-Inconnu. Paris: 8vo, 1892, Oiseaux, pp. 488 & 489.
- BOUCARD, A. Aves colectadas en Costarica. An. Mus. Costa Rica, iii, pp. 141-159.

[BOUCARD, A.] [See also *Phasiani*, p. 26 ; *Trochili*, p. 46.]

— H. W. Bates [Obituary Notice]. *Humming Bird*, ii, pp. 26–31, with portrait.

BOUCARD, A., & BERLEPSCH, H. VON. List of Birds collected by M. Hardy, at Porto Real, Brazil, with description of one supposed new species. *Humming Bird*, ii, pp. 41–45.

[*Formicariidæ*, p. 63.]

BREWSTER, W. [See *Mniotiltidæ*, p. 53.]

BROOKS, W. E. A few remarks on Mr. Oates's "Birds of British India." *Ibis*, 1892, pp. 59–62.

[*Corvidæ*, p. 47 ; *Regulidæ*, p. 55 ; *Sylviidæ*, p. 57 ; *Muscicapidæ*, p. 61 ; *Turdidæ*, p. 57 ; *Motacillidæ*, p. 53 ; *Alaudidæ*, p. 53.]

BRUSINA, S. Vögel Croato-Serbische mit Berücksich des übrig slav. Südens. Verbreitung für eine croato-serbische Ornithologie. Fortsetzung. *Denkschr. Serb. K. Akad.* xii, 168 pp.

— K. Ornitologi Kitora i Crne Gore. *Glasnik Naravosl. Druž.* vi, pp. 59–81.

— Ornitološke bilješke za hrvatsku faunu. *Op. cit.* iii, pp. 129–150 (1888).

— Nore ornitološke bilješke. *Op. cit.* iv, pp. 205–221 (1889).

BRUTTINI, A. Appunti storici sulla Falconeria. *Riv. Ital. Sci. Nat.*, Ann. xii (Boll.), pp. 89, 90, 100–102, 107–109, 121, & 122.

BRYANT, W. E. A Check-list of the Water Birds of California. *Zoe*, iii, pp. 135–140.

BÜCHNER, E. Rapport sur le deuxième Congrès Ornithologique International de Budapest. 8vo, pp. 1–50.

BUCKLEY, T. E. Contributions to the Vertebrate Fauna of Sutherland and Caithness. *Ann. Scott. Nat. Hist.* i, pp. 156–168.

[See also HARVIE-BROWN & BUCKLEY.]

BUDA, A. VON. Unsere seltener Gäste im Comitate Hunyad. *C.R.* ii, Congr. Orn. Intern. ii, pp. 145–148.

BULLER, W. L. Notes and Observations on New Zealand Birds. *Tr. N. Z. Inst.* xxiv, pp. 64–74, pl. xiv.

— Further Notes and Observations on certain species of New Zealand Birds. *T. c.* pp. 75–92.

[*Apterygiformes*, p. 25.]

BURMEISTER H. [THE LATE]. Obituary Notice. *Ibis*, 1892, pp. 581 & 582.

BUTLER, A. W. [See *Psittaciformes*, p. 47.]

BÜTTIKOFER, J. On the Collections of Birds sent by the late R. T. Demery, from the Sulymah River (W. Africa). *Notes Leyd. Mus.* xiv, pp. 19–30.

[*Ploceidæ*, p. 51.]

- [BÜTTIKOFER, J.] On a Collection of Birds from the Islands of Flores, Sumba, and Rotti. *T. c.* pp. 193-206.  
 [*Sylviidæ*, p. 58; *Diceidæ*, p. 54; *Meliphagidæ*, p. 54; *Ploceidæ*, p. 51; *Muscicapidæ*, p. 61.]
- . Europäische Zug-vögel als Gäste in Liberia. *C.R. ii*, Congr. Orn. Intern. ii, pp. 172-176.
- . J. P. van Wickevoort Crommelin [Obituary Notice]. *Orn. Jahrb.* iii, pp. 76-79.
- . [See also *Ploceidæ*, p. 51; *Sylviidæ*, p. 57; *Turdidæ*, p. 57; *Muscicapidæ*, p. 61.]
- CABANIS, J. [See *Pterocletes*, p. 28.]
- CAMPBELL, A. G. Notizen ueber Australische Oologie. *C.R. ii*, Congr. Orn. Intern. ii, pp. 155-158.  
 [*Menuræ*, p. 49; *Sterninæ*, p. 32.]
- . [See also *Paradiseidæ*, p. 50.]
- CAMPBELL, C. W. A List of the Birds collected in Corea. *Ibis*, 1892, pp. 230-248, pl. v.  
 [*Picidæ*, p. 49; *Timeliidæ*, p. 59; *Sylviidæ*, p. 57; *Muscicapidæ*, p. 62.]
- CANNAVIELLO, E. Casi d'Albinismo nella Provincia di Napoli. *Boll. Ital. Sci. Nat.* xii, p. 72.
- CAPEK, V. [See *Cuculidæ*, p. 46.]
- CHAPMAN, F. M. Notes on Birds and Mammals observed near Trinidad, Cuba, with remarks on the origin of West Indian Bird Life. *Bull. Am. Mus.* iv, pp. 279-330.  
 [*Ralliformes*, p. 30; *Columbiformes*, p. 29; *Buteoninæ*, p. 38; *Tyrannidæ*, p. 62; *Icteridæ*, p. 51; *Mniotiltidæ*, p. 53.]
- . A Preliminary Study of the Grackles of the Subgenus *Quiscalus*. *Bull. Am. Mus.* iv, pp. 1-20, map.  
 [*Icteridæ*, p. 51.]
- \*CHENEY, S. P. Wood Notes Wild, Notations of Bird Music. Boston, U.S.A.: 1892, 12mo, i-xvi & 1-261 pp.
- CHERNEL, S. VON. [See *Scolopacidæ*, p. 34.]
- CHERRIE, G. K. A preliminary list of the Birds of San Josè, Costa Rica. [*Zool. Rec.* xxviii, *Aves*, p. 7.] *Auk.* ix, pp. 21-27, 247-251, 322-329.  
 [*Tanagridæ*, p. 52; *Icteridæ*, p. 51.]
- . Descripcion de tres Especies nuevas para la Avifauna Costaricense. *An. Mus. Costa Rica*, iii, pp. 135-137.  
 [*Tanagridæ*, p. 52; *Formicariidæ*, p. 63.]
- . [See also *Tyrannidæ*, p. 62.]
- CHIEVITZ, J. H. Sur l'existence de l'area centralis retinæ dans les vertébrés. *Overs. Dan. Selsk.* 1891, *Aves*, pp. 246-252.

- CHURCH, A. H. Researches on Turacin, an animal pigment containing copper. Phil. Tr. clxxxviii, pp. 511-536. [*Musophagidæ*, p. 47.]
- CLARKE, W. EAGLE. [See *Gruiformes*, p. 34 ; *Lariformes*, p. 32 ; *Muscicapidæ*, p. 60.]
- COCKERELL, T. The West Indian fauna in South Florida. Nature, xlii, pp. 458-459.
- COLLETT, R. On a collection of Birds from Tongoa, New Hebrides. Forh. Selsk. Chr. 1892, pp.
- . Das Leben der Vögel im Arctischen Norwegen. C.R. ii, Congr. Orn. Intern. ii, pp. 21-39.
- COPE, E. D. Occurrence of Bird remains in Pueres Series, New Mexico. Tr. Am. Phil. Soc. xvi, p. 302.
- CORDEAUX, J. On the Migration of Birds as observed on the east coast of Great Britain. C.R. ii, Congr. Orn. Intern. ii, pp. 165-167.
- . A recent visit to the Farne Islands. Zool. 1892, pp. 293-303.
- . Migration in the Humber District in the Autumn of 1892. T. c. pp. 417-420.
- . [See also *Sylviidæ*, p. 57.]
- CORY, C. B. Catalogue of West Indian Birds, containing a list of all species known to occur in the Bahama Islands, the Greater Antilles, the Caymans, and the Lesser Antilles, excepting the Islands of Tobago and Trinidad. Boston : 1892, roy. 8vo, 163 pp., with map. [*Columbiformes*, p. 29 ; *Striges*, p. 40 ; *Fringillidæ*, p. 52 ; *Vireonidæ*, p. 56 ; *Carebidæ*, p. 52.]
- . A list of Birds taken on Maraguana, Watling's Island, and Inagua, Bahamas, during July, August, September, and October, 1891. Auk, ix, pp. 48 & 49.
- . Remarks on a Collection of Birds made by W. W. Brown, jun., on Mona and Porto Rico during February and a part of March, 1892. T. c. pp. 228 & 229.
- . In Cuba with Dr. Gundlach. T. c. pp. 271-273.
- . [See also *Picidæ*, p. 49.]
- COUVREUR, E. Influence du Pneumogastrique sur les fonctions circulatoires (cœur, pression sanguine, effets vasomoteurs), chez les Oiseaux, et comparaison avec les Mammifères. Ann. Soc. L. Lyon (n.s.) xxxix, pp. 11-24.
- . Influence du Pneumogastrique sur la sécrétion urinaire chez les Oiseaux et comparaison avec les Mammifères. T. c. pp. 25-40.
- . Sur la Pneumogastrique des Oiseaux. Ann. Univ. Lyon, pp. 1-104, pls. i-iii.
- CRAIG, A. Stray notes on the Birds of Anglesea. Tr. Edinb. Nat. Soc. ii, p. 361, 1889-90.

- [CRAIG, A.] Birds of the Great Glen, Inverness-shire. Tr. Edinb. Nat. Soc. pp. 439-457, 1890-91.
- CREAGHE-HAWARD, L. Notes on some East Anglian Birds. Tr. Leicester Soc. ii, pp. 538-554.
- CROMMELIN, J. P. VAN WICKEVOORT [THE LATE]. Obituary Notice. Ibis, 1892, p. 352.
- [See also BÜTTIKOFER, J.]
- CROWLEY, P. [See *Paradiseidæ*, p. 50 ; *Ptilonorhynchidæ*, p. 50.]
- CZATO, J. VON. [See *Accipitriformes*, p. 37.]
- CZÝNK, E. VON. Der Herbstzug, 1891, im Fogaras-cher Comitât. Orn. Jahrb. iii, pp. 191-195.
- DALGLEISH, J. J. [See *Procellariidæ*, p. 31.]
- DARESTE, C. Note sur l'évolution de l'embryon de la poule soumis pendant l'incubation à un mouvement de rotation continu. C.R. cxv, pp. 137 & 138.
- DAVIES, S. A. A Naturalist's Ramble in Swedish Lapland. Zool. 1892, pp. 81-87.
- DAVISON, W. R. Descriptions of some new species of Birds from the Eastern Coast of the Malayan Peninsula. Ibis, 1892, pp. 99-103.
- [*Campophagidæ*, p. 60 ; *Muscicapidæ*, p. 60 ; *Timeliidæ*, p. 59 ; *Eulabetidæ*, p. 50.]
- DE LA TOUCHE, J. D. On Birds collected or observed in the vicinity of Foochow and Swatow in South-eastern China. Part I [with notes by H. H. SLATER]. Ibis, 1892, pp. 400-430.
- . ———. Part II. *Id. t. c.* pp. 477-503, pl. xii.
- [*Ralliformes*, p. 30.]
- DÉPERET, C. Sur la faune d'Oiseaux pliocènes du Roussillon. C.R. cxiv, pp. 690-692. [*Corvidæ*, p. 48 ; *Perdicidæ*, p. 27 ; *Anatidæ*, p. 35.]
- DE VIS, C. W. Report on the Zoological Gleanings of the Administration during the year 1890-91 [Annual (Parliamentary) Report on British New Guinea]. Brisbane : 1892, App. cc, pp. 93-97, cum tab.
- [*Muscicapidæ*, p. 56 ; *Meliphagidæ*, p. 54 ; *Timeliidæ*, p. 59 ; *Ptilonorhynchidæ*, p. 50 ; *Laniidæ*, p. 56.]
- . Zoology of British New Guinea. Ann. Queensland Mus. ii, pp. 4-11.
- [*Muscicapidæ*, p. 58 ; *Timeliidæ*, p. 59 ; *Meliphagidæ*, p. 54 ; *Paramythiidæ*, p. 50 ; *Sylviidæ*, p. 58 ; *Laniidæ*, p. 56.]
- . Residue of the Extinct Birds of Queensland as yet detected. P. Linn. Soc. N.S.W. (2) vi, pp. 437-456, pls. xxiii & xxiv.
- [*Casuariiformes*, p. 24 ; *Apterygiformes*, p. 25 ; *Aquilinæ*, p. 38 ; *Ralliformes*, p. 31 ; *Pelargiformes*, p. 34 ; *Plataleæ*, p. 34 ; *Pelecani*, p. 36.]

- DISTANT, W. L. *A Naturalist in the Transvaal.* London: 8vo, xvi & 277 pp., 5 pls.  
[*Aves*, pp. 163-169.]
- DIXON, L. *The Migration of Birds. An attempt to reduce Avian Flight to Law.* London: 1892, 8vo, viii & 300 pp.  
[See *Nature*, xlv, pp. 169-172.]
- DRESSER, H. E. [See *Laniidæ*, p. 55; *Paridæ*, p. 55; *Cinclidæ*, p. 58.]
- DUBALEU, P. E. *Monographie raisonnée des Oiseaux, observés dans les départements des Landes, de la Gironde, du Gers, des Basses-Pyrénées, des Hautes-Pyrénées, et sur le Golfe de Gascogne.* Bull. Soc. Borda-Dax, xvii, pp. 173-191.
- DUCHAUSSEY, H. [See *Hirundinidæ*, p. 61.]
- DUBOIS, A. *Établissement d'une classification Internationale.* C.R. ii, Congr. Orn. Intern. ii, pp. 92-94.
- DUGÈS, A. *Instrucciones para colectores de Aves.* Nat. Mex. (2) ii, pp. 175-179, pl. ix.
- D'URBAN, W. S. M., & MATHEW, M. A. *The Birds of Devon.* London: 1892, 8vo, i-lxxxvii & 1-460 pp.
- DWIGHT, I. *Summer Birds of the Crest of the Pennsylvania Alleghanies.* Auk, ix, pp. 129-142.
- DYBOWSKI, J., & OUSTALET, E. *L'extreme sud Algérien.* Arch. Miss. Sci. i, 1891, pp. 354-359.
- EGLINGTON, W. [See NICOLLS & EGLINGTON.]
- ELLIOT, D. G. *The inheritance of acquired characters.* [Presidential address to the A. O. U. Nov. 18, 1891.] Auk, ix, pp. 77-104.
- . *Hybridism, and a description of a Hybrid between *Anas boschas* and *A. americana*.* T. c. pp. 160-166.  
[*Anseriformes*, p. 35.]
- EVANS, A. H. [See WILSON & EVANS.]
- EVANS, W. *Some further notes on the periods occupied by Birds in the Incubation of their Eggs.* Ibis, 1892, pp. 55-58. [Cf. Zool. Rec. xxviii, *Aves*, p. 10.]
- FABANI, C. *Nota intorno ad alcuni casi di anomalie nel colore degli uccelli.* Riv. Ital. Sci. Nat., Ann. xii (Boll.), pp. 2 & 3.
- . *Spiegazione intorno alle cause dell' isabellismo, melanismo ed albinismo negli uccelli.* T. c. pp. 3 & 4.
- . *Epoche, mutazioni et varietà nel Canto degli uccelli.* T. c. pp. 35-39.
- . *Teoria delle somiglianze nel Canto degli uccelli.* T. c. pp. 90 & 91.

- [FABANI, C.] Studio sul mimetismo nel colorito degli uccelli. Riv. Ital. Sci. Nat., Ann. xii (Boll.), pp. 105, 106, & 122-124.
- FATIO, V. [See STUDER & FATIO.]
- FAUVEL, A. La Faune du Chan-toung. Rev. Quest. Sci. ii (i) pp. 455-492.  
Oiseaux, pp. 466-476.
- FERGUSON, R. S. [See MACPHERSON, H. A.]
- FICALBI, E. Sulla architettura istologica di alcuni peli degli uccelli con considerazioni sulla filogenia dei peli e delle penne. Atti [Mem.] Soc. Tosc. xi, 1890, pp. 227-266, pl. ix.
- FIELD, H. C. [See *Dinornithiformes*, p. 25.]
- FINN, F. An Evolutionist in East Africa. Nat. Sci. i, pp. 744-748.
- FISCHER-SIEGWART, H. L'albinisme chez les Oiseaux. Arch. Sci. Nat. (3) xxviii, pp. 555-559.
- FLOERICKE, C. Winterbeobachtungen 1891-92. Orn. Jahrb. iii, pp. 182-189.
- . Zur charakteristik der schlesischen Vogelwelt. J. f. O. 1892, pp. 151-170.
- \*—. Versuch einer avifauna der Provinz Schlesien. Lief i, 8vo, Marburg, 1892.
- . XII Jahresbericht (1887) des Ausschusses für Beobachtungsstationen der Vögel Deutschlands. J. f. O. 1892, pp. 237-253.
- FORBES, H. O. Preliminary notice of additions to the extinct Avifauna of New Zealand. Tr. N. Z. Inst. xxiv, pp. 185-189.  
[*Accipitrinæ*, p. 38 ; *Ralliformes*, p. 30 ; *Anseriformes*, p. 35 ; *Phalacrocoraces*, p. 36 ; *Dinornithiformes*, p. 25.]
- . *Aphanapteryx* and other remains in the Chatham Is. Nature, xlvi, pp. 252 & 253.
- . [See also *Ralliformes*, p. 30 ; *Corvidæ*, p. 49.]
- FOSTER, L. S. Bibliographies of American Naturalists : iv. The Published Writings of George Newbold Lawrence, 1844-1891. Bull. U. S. Nat. Mus. No. 40, pp. xi-124.
- FRITSCH, A. Die Vogelwelt am Gatterschlager Teiche bei Neuhaus in Böhmen. Orn. Jahrb. iii, pp. 19-23.
- . Die Vogelwelt am unter-Porernitzer Teiche bei Prag. T. c. pp. 30-32.
- FROHAWK, F. W. [See *Ralliformes*, p. 30.]
- FÜRBRINGER, M. L. Stejneger's Vogelsystem und Th. Studer's Untersuchungen über die Embryonalentwicklung der antarktischen Vögel. J. f. O. 1892, pp. 137-151.

[FÜRBRINGER, M.] Untersuchungen zur Morphologie, &c., der Vögel.  
[Review by F. HELM.] Biol. Centralbl. xii, pp. 146-157.

GADOW, H. On the Classification of Birds. P. Z. S. 1892, pp. 229-256.  
[See also *Opisthocomi*, p. 29.]

GÄTKE, H. Ornithologisches aus Helgoland. Orn. Jahrb. iii, pp. 201 & 202.

[*Plataleæ*, p. 34; *Fringillidæ*, p. 53; *Alaudidæ*, p. 53.]

—. [See also SEEBOHM, H.]

GIBBS, M. Acorn-eating Birds in Michigan. Nature, xli, p. 495.

GIGLIOLI, H. H. L'Avigeographia. C.R. ii, Congr. Orn. Intern. ii, pp. 159-164.

— & MANZELLA, A. Iconographia dell' Avifauna Italica, ovvero Tavole illustranti le specie di Uccelli che trovansi in Italia con brevi descrizione e note. Prato (Toscana): 1892, fol., pts. xlvii-l.

[*Accipitriformes*, p. 39; *Pandiones*, p. 39; *Striges*, p. 40; *Caprimulgi*, p. 44; *Cypseli*, p. 44; *Laniidæ*, p. 56; *Certhiidæ*, p. 54; *Sittidæ*, p. 54; *Turdidæ*, p. 57; *Muscicapidæ*, p. 60.]

GODMAN, F. D., & SALVIN, O. Biologia Centrali-americana; or Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. [Zool. Rec. xxviii, *Aves*, p. 12.] London: 1892, 4to, Zoology, pts. xcix, c, cii-cv, pp. 193-368, pls. 49-57.

[*Formicariidæ*, p. 62; *Trochili*, p. 45.]

—. [See also SALVIN & GODMAN.]

GOERING, A. Zur kenntnis des Pflanzen- und Thier-lebens der Paramos. MT. Osterlande (n.s.) v, pp. 249-256.

GRANT, W. R. OGILVIE. [See OGILVIE-GRANT.]

GURNEY, J. H. Ornithological Notes from Norfolk. Zool. 1892, pp. 398-401.

HAIGH, G. H. CATON. The Motions of Divers on Land. T. c. p. 226.

HALL, H. G. Odd-coloured eggs. C.R. ii, Congr. Orn. Intern. ii, pp. 153 & 154.

HÄNISCH, H. Aus Dalmatien. Orn. Jahrb. iii, pp. 27-30.

[*Scolopacidæ*, p. 33.]

—. Ornithologische Mittheilungen aus dem unteren Narentathale. T. c. pp. 55-60.

[*Ardeidæ*, p. 34.]

—. [See also *Otides*, p. 34.]

HAMILTON, A. [See *Ralliformes*, p. 30; *Dinornithiformes*, p. 25.]

HARTERT, E. Notes on the *Caprimulgidæ*. Ibis, 1892, pp. 274-288, pl. vi.

[*Caprimulgi*, p. 44.]

- [HARTERT, E.] Catalogue of the *Picariæ* in the Collection of the British Museum. *Caprimulgi* [q.v.], *Cypseli* [q.v.]. [Vol. XVI of the Catalogue of Birds.] London : 8vo, pp. 434-654, pls. x-xiv.
- [*Caprimulgi*, p. 44 ; *Cypseli*, p. 44 ; *Podargi*, p. 40 ; *Steatornithes*, p. 40.]
- . On the Birds of Eastern Prussia. Part I. *Ibis*, 1892, pp. 353-372. [*Sylviidæ*, p. 57 ; *Sittidæ*, p. 54 ; *Fringillidæ*, p. 53 ; *Corvidæ*, p. 49.]
- . ———. Part II. *T. c.* pp. 504-522.
- . Trivial-namen und Notizen aus Schlesien. *Orn. Jahrb.* iii, pp. 32 & 33.
- . [See also *Striges*, p. 40 ; *Pioninæ*, p. 47 ; *Conurinæ*, p. 47 ; *Alaudidæ*, p. 53 ; *Tyrannidæ*, p. 62.]
- HARTING, J. E. Hawks and Hawking. *P. R. Inst.* xiii, pp. 357-361.
- HARTLAUB, G. Ein Beitrag zur Ornithologie Chinas. *Abh. Ver. Brem.* xii, pp. 295-335.
- . [See also *Ralliformes*, p. 30 ; *Muscicapidæ*, p. 61.]
- HARVIE-BROWN, J. A., & BUCKLEY, T. E. A Vertebrate Fauna of Argyll and the Inner Hebrides. Edinburgh : 1892, Roy. 8vo, xxiv & 314 pp., map.
- [See also *Piciformes*, p. 48.]
- HELM, F. [See FÜRBRINGER, M., & MEYER, A. B.]
- HATCH, P. L. Notes on the Birds of Minnesota, with specific characters. Minneapolis : 1892, 8vo, ix & 487 pp.
- HENKE, R. G. Auch einiges über Rackelwild und Hahnenfedrigkeit. *J. f. O.* 1892, pp. 170-177.
- HERRANO, A. L. [See *Psittaciformes*, p. 47.]
- HEWETSON, H. B. Causes of Variation in Shape and Colour of Eggs. *Tr. Leeds Nat. Club*, ii, pp. 64-66 (1890).
- HILL, J. P. [See HOWES & HILL.]
- HOLLAND, A. H. Short Notes on the Birds of the Estancia Espartilla, Argentine Republic. *Ibis*, 1892, pp. 193-214.
- HOMEYER, A. VON. Ueber das Leben der Vögel in Central West Afrika. Denkwürdigkeiten meiner Reise nach und durch Angola, 1875. *C.R.* ii, *Cong. Orn. Intern.* ii, pp. 1-17.
- HOWES, G. B., & HILL, J. P. Pedal Skeleton of the Dorking Fowl, with remarks on hexadactylism and phalangeal variation in the *Amniota*. *J. Anat. Phys.* xxvi, pp. 395-403.
- HUBBARD, S. Additions to the Birds of the Gray's Harbour Region, Washington. *Zoe*, iii, pp. 140-144.
- HUDSON, W. H. The Naturalist in La Plata. London : 1892, 8vo, viii & 388 pp.

HUTCHINSON, H. N. Extinct Monsters. A Popular Account of some of the larger forms of Animal Life. London: 1892, 8vo, i-xx & 1-254 pp.

[*Hesperornithiformes*, p. 31.]

HUTTON, F. W. [See *Dinornithiformes*, p. 25.]

IJIMA, J. Notes on a collection of Birds from Tsushima. J. Coll. Sci. Japan, v, pp. 105-128, pl. xii.

[*Piciformes*, p. 49.]

IRBY, L. H. British Birds, Key List. Second Edition. London: 1892, 8vo, viii & 70 pp.

JACKSON, F. J. [See SHARPE, R. B.]

JAMES, H. BERKELEY [THE LATE]. A New List of Chilian Birds, with a preface by P. L. Selater. London: 8vo, 1892, viii & 16 pp.

JOHNSON, F. O. Bird Notes from Alameda County. Zoe, iii, pp. 115-117.

JOHNSON, F. P. Birds observed on a Fishing Expedition to South Trondhjem. Zool. 1892, pp. 267-269.

KAISER, A. Zur Ornithologie der Sinaihalbinsel. Orn. Jahrb. iii, pp. 207-248.

KEELER, C. A. Evolution of the Colours of North American Land Birds. Occas. papers Calif. Acad. iii, 362 pp., xix pls..

[*Cf. Auk*, xi, pp. 189-195.]

——. A supposed new feather structure (*Pseudoptilum*). Zoe, iii, p. 257.

——. On the Natural History of the Farallon Islands. Zoology. T. c. pp. 144-165, pls. xviii-xxi.

KERR, J. GRAHAM. On the Avifauna of the Lower Pilcomayo. Ibis, 1892, pp. 120-152, pl. iii.

[*Piciformes*, p. 48.]

KERVILLE, H. G. DE. Faune de la Normandie. Fasc. iii. *Columbidae*, *Gallinaceae*, *Grallae*, *Palmipedes*. Bull. Soc. Rouen, 1892, pp. 201-582, pl. i.

——. [See also *Lariformes*, p. 32.]

KHLYEBNIKOV, V. Spisok Ptits Astrakhanskoï gubernii. Protok. obsch. estest. Kazan, 1890-91 (1891), No. 121, 10 pp.

\*KLEIN, E. The Etiology and Pathology of Grouse Disease, Fowl Enteritis, and some other Diseases affecting Birds. London: 8vo.

KLEINSCHMIDT, O. Einige bemerkenswerte Notizen aus der Umgebung von Marburg a. d. Lahn (Sommer 1891 und winter 1891-92). Orn. Jahrb. iii, pp. 166-168.

——. Vögel des Grossherzogthums Hessen, insbesondere der Rheinebene bei Nierstein. T. c. pp. 195-212.

- KLUG, K. Beiträge zur Kenntniss der Verdauung der Vögel insbesondere der Gänse. C.R. ii, Congr. Orn. Intern. ii, pp. 43-59, taf. i.
- KNUBLEY, E. P. Is Legislative Protection required for Wild Birds' Eggs? Ann. Scott. Nat. Hist. i, pp. 213-218.
- KÖENIG, A. Zweiter Beitrag zur Avifauna von Tunis. J. f. O. 1892, pp. 266-312 & 330-416, taf. iii.
- KÖENIG-WARTHAUSEN, BARON. Ueber späte Vogelbruten. JH. Ver. Württ. xlviii, pp. lxiv & lxv.
- . Färbung der Vogeleier. T. c. pp. lxiii & lxiv.
- KOEPERT, O. [See *Sturnidæ*, p. 50.]
- KOLOMBATOVIC, G. [See *Anseriformes*, p. 35.]
- KOLLIBAY, —. Ornithologisches aus Schlesien. J. f. O. 1892, pp. 317-328.
- KOSIC, V. Gragja za dubrovačku nomenklaturu i faunu ptica. Glasnik. Naravosl. Druž. iii, pp. 118-128 (1888).
- LAWRENCE, G. N. [See FOSTER, L. S.]
- LAWRENCE, R. H. A Preliminary List of the Birds of the Gray's Harbour Region, Washington. Auk, ix, pp. 39-47.
- . Further Notes on Birds of the Gray's Harbour Region, Washington. T. c. pp. 352-357.
- LEGGE, W. V. Protection of Tasmanian Owls. P. R. Soc. Tasm. 1889, p. 40.
- . Protection of the Cape Barren Goose. T. c. pp. 41 & 42.
- . [See also *Limicolæ*, p. 33.]
- LÉOTARD, J. Sur la disparition ou l'extension de diverses espèces animales. CR. Ass. Fr. Sci. xx, Birds, pp. 563-565.
- LEEBODY, J. R. Notes on Birds of Lough Swilly. Irish Nat. i, pp. 173-177.
- LEVERKÜHN, P. Bericht über eine Reise nach Ungarn im Frühjahr, 1891. C.R. ii, Congr. Orn. Intern. ii, pp. 210-238.
- LEWIS, H. Notes on Birds observed in Hertfordshire during the Year 1891. Tr. Hertf. Soc. vii, pp. 62-68.
- LILFORD [LORD]. Coloured Figures of the Birds of the British Islands. Pts. xxi & xxii [cf. Zool. Rec. xxviii, *Aves*, p. 16].
- The species figured are mentioned under the headings of their respective families.
- . Notes on the Ornithology of Northamptonshire. Zool. 1892, pp. 201-210.
- . Notes on the Birds of Northamptonshire. J. Northampt. Soc. v, pp. 41-53, 85-93, 131-141, 161-171, 178-1 6, 207-222, 293-302.
- . —. *Op. cit.* vi, pp. 1-7, 41-49, 69-76, 116-125, 162-171, 196-207, 262-266, & 269-277.

- [LILFORD (LORD).] Notes on the Birds of Northamptonshire. J. North-ampt. Soc. vii, pp. 3-12, 58-63, & 140-146.
- . [See also *Accipitriformes*, p. 37; *Hemipodii*, p. 28.]
- LINSTOW, DR. V. Beobachtungen an Vogeltänien. CB. Bakt. Parasit. xii, pp. 501-504.
- LOOMIS, L. M. A further Review of the Avian Fauna of Chester County, South Carolina [Zool. Rec. xxviii, *Aves*, p. 17]. Auk, ix, pp. 28-39.
- LORENZ, T. Die Vögel des Moskauer Gouvernements. Bull. Soc. Mosc. 1892, pp. 263-321.
- LORENZ VON LIBURNAU, L. Die Ornis von Oesterreich-Ungarn und den Occupationsländern im k. k. Naturhistorischen Hofmuseum zu Wien. Ann. Hofmuseum Wien, vii, pp. 306-372.
- LUCAS, F. A. [See *Alciformes*, p. 32.]
- . [See also *Trochili*, p. 45.]
- LUZECKI, O. J. Zur Ornis der südöstlichen Bukowina. Orn. Jahrb. iii, pp. 199-201.
- LYDEKKER, R. Remarks on some recently described Extinct Birds of Queensland. Ibis, 1892, pp. 530-533.
- . Recent Researches in Fossil Birds. Nat. Sci. i, pp. 266-271.
- . [See also *Dinornithiformes*, p. 25.]
- MACKAY, G. H. [See *Charadriidæ*, p. 33; *Scolopacidæ*, p. 33.]
- MACPHERSON, H. A. A Vertebrate Fauna of Lakeland; including Cumberland and Westmoreland, with Lancashire north of the Sands. With a Preface by R. S. Ferguson. Edinburgh: 1892, 8vo, i-civ & 1-552 pp.
- . Winter Notes from Switzerland and North Italy. Zool. 1892, pp. 258-263.
- MANZELLA, A. [See GIGLIOLI, H. H.]
- MARTORELLI, G. Le Mute Regressive degli Uccelli Migranti, e il loro scambio tra gli Emisferi Nord e Sud. Atti Soc. Ital. xxxiv, pp. 36-97.
- MATHEW, M. A. [See D'URBAN & MATHEW.]
- MCLEOD, J. C. Ornithological Notes from New Zealand. Ibis, 1892, pp. 250-254.
- MEARNS, E. A. [See *Falconidæ*, p. 39.]
- MERRIAM, C. HART. The Geographic Distribution of Life in North America, with special reference to the *Mammalia*. P. Biol. Soc. Wash. vii, pp. 1-64, pl. i.

[MERRIAM, C. HART.] The West Indian Fauna in South Florida. Nature, xlvi, pp. 458 & 459.

—. [See also *Striges*, p. 40.]

MEYES, F. W. [THE LATE]. Obituary Notice. Ibis, 1892, pp. 191 & 192.

MEYER, A. B. Abbildungen von Vogel-skeletten herausgegeben mit Unterstützung der Generaldirektion der Königl. Sammlungen für Kunst und Wissenschaft in Dresden. Lief. xvi, xvii, xviii, taf. cli-clxxx. [Zool. Rec. xxvii, *Aves*, p. 127.]

The species figured are mentioned under their respective families.

—. Beitrag zur Kenntniss der Vogelfauna von Kaiser Wilhelms-Land. J. f. O. 1892, pp. 254-266.

[*Timeliidæ*, p. 59; *Paradisæidæ*, p. 50; *Columbiformes*, p. 28.]

—. The Birds of Sumba. Notes Leyd. Mus. xiv, pp. 265 & 266.

[*Palæornithinæ*, p. 48.]

—. [See also *Aquilinæ*, p. 38.]

—. [See also *Pycnonotidæ*, p. 59.]

— & HELM, F. VI. Jahresbericht (1890) der Ornithologischen Beobachtungstationen im Königreiche Sachsen. Dresden: 1892, i-iv & 1-135 pp.

MIDDENDORF, E. v. Vogelleben an den Russischen Leuchthürmen des Schwarzen, Kaspischen und Weissen Meeres. Ornith., 1893, pp. 1-124.

MILLAIS, J. G. [See *Tetraonidæ*, p. 26.]

MILNE-EDWARDS, A. Sur les oiseaux fossiles des depots Eocènes de phosphate de Chaux du sud de la France. C.R. ii, Congr. Orn. Intern. ii, pp. 60-80.

[*Accipitriformes*, p. 38; *Striges*, p. 40; *Cuculidæ*, p. 46; *Trogones*, p. 46; *Coraciæ*, p. 41; *Cypseli*, p. 44; *Pseudopisthocomi*, p. 29; *Pterocletes*, p. 28; *Galliformes*, p. 27; *Grues*, p. 34; *Ardeæ*, p. 34; *Ralliformes*, p. 30; *Tapinopi-formes*, p. 35.]

MIVART, ST. GEORGE. Birds: The Elements of Ornithology. London: 1892, 8vo, 330 pp.

MOCHLER-FERRYMAN, A. F. Up the Niger: Narrative of Major Claude Macdonald's Mission to the Niger and Benue Rivers, W. Africa. London: 8vo, 1892, Birds, Appendix, p. 310.

MORE, A. G. Recent Additions to the List of Irish Birds. Irish Nat. i, pp. 3 & 4.

NACHTRIEB, H. F. First Report of the State Zoologist, accompanied with Notes on the Birds of Minnesota, by Dr. P. L. Hatch [*q.v.*]. Minneapolis: 1892, 8vo, 487 pp.

NEWTON, A. Errors concerning the Sanderling. [Add. to Ibis for July, 1892], 8vo, 5 pp.

[*Scolopacidæ*, p. 33.]

NICHOLLS, H. Notes on the Habits of some of our British Birds. Tr. Eastb. Nat. Hist. Soc. 1892, pp. 253-258.

NICOLLS, J. A., & EGLINGTON, W. The Sportsman in South Africa. The haunts, habits, description, and the pursuit of all game, fur and feather, found south of the Zambesi (including the Cape Colony, Transvaal, Bechuanaland, Natal, and Damaraland), at the present day, with brief notices of the best-known fresh and saltwater fish. 1892, 8vo, vi & 148 pp., pls. i-xii.

NORTH, A. J. Supplement to the Descriptive Catalogue of Nests and Eggs of Birds found Breeding in Australia and Tasmania. Rec. Austral. Mus. ii, pp. 11-22.

[*Striges*, p. 40; *Cacatuidæ*, p. 47; *Coccyges*, p. 47; *Paradiseidæ*, p. 50; *Timeliidæ*, p. 59; *Campophagidæ*, p. 60; *Meliphagidæ*, p. 54.]

——. Additions to the Avifaunas of Tasmania, and Norfolk and Lord Howe's Islands. T. c. pp. 36-38.

[*Anseriformes*, p. 35; *Pelargiformes*, p. 34; *Phalacrocoraces*, p. 36; *Scolopacidæ*, p. 33.]

OATES, E. W. [See BROOKS, W. E.]

OGILVIE, F. M. [See *Laridæ*, p. 32.]

OGILVIE-GRANT, W. R. Catalogue of the *Picariæ* in the Collection of the British Museum. *Bucerotes* [*q.v.*, p. 42] and *Trogones* [*q.v.*, p. 46]. [Vol. xvii of the "Catalogue of Birds." 1892, 8vo, pp. 347-502, pls. xiii-xvii.

——. [See also *Perdacidæ*, p. 27.]

——. [See also *Hemipodii*, p. 28.]

OLPHE-GALLIARD, L. Christian Ludwig Brehm's Ornithologische Briefe (with Portrait). Orn. Jahrb. iii, pp. 127-162, taf. i.

ONSLow [EARL OF]. Native New Zealand Birds. Nature, xlv, pp. 502 & 503.

OUSTALET, M. E. Catalogue des oiseaux rapportés de l'Ile Nias, par M. J. Claine en 1891. Bull. Soc. Philom. viii, iv, pp. 107-122.

——. Contributions à la Faune de la Chine et du Thibet. Description des espèces et de races nouvelles d'oiseaux données récemment au Musée d'Histoire Naturelle, par le Prince Henri d'Orléans. Ann. Sci. Nat. (7) xii, pp. 271-318.

[See *Perdacidæ*, p. 27; *Cinclidæ*, p. 58; *Timeliidæ*, p. 58; *Frin-gillidæ*, p. 52; *Paridæ*, p. 55; *Zosteropidæ*, p. 55.]

[OUSTALET, M. E.] Notice sur quelques espèces nouvelles ou peu connues de la Collection ornithologique du Muséum d'Histoire Naturelle. N. Arch. Mus. Paris (2) iv, pp. 211-220, pls. xiv & xv.

[*Halcyones*, p. 42; *Paradiseidæ*, p. 50; *Ampelidæ*, p. 56; *Muscicapidæ*, p. 61; *Tyrannidæ*, p. 62.]

——. Rapport a M. le Ministre de l'Instruction Publique et des Beaux-Arts sur le Congrès Ornithologique International de Budapest en 1891. Arch. Miss. Sci. 1892, 34 pp.; *t. c.* pp. 441-473 (1891).

——. Rapport sur la Biologie des Oiseaux. C.R. ii, Congr. Orn. Intern. ii, pp. 95-117.

——. [See DYBOWSKI, J.]

\*PACKARD, A. S. The Labrador Coast. A Journal of Two Summer Cruises to that Region. With Notes on its Early Discovery, on the Eskimo, on its Physical Geography, Geology, and Natural History. New York: 1891, 8vo, 1-513 pp., with maps and illustrations.

PALACKY, J. Ueber die Nordostasiatische Orn. Verh. z.-b. Wien, xlii, pp. 43-46.

PALMER, J. E. Birds of Lambay Island. Irish Nat. i, pp. 114-117.

PARKER, T. JEFFERY. [See *Apterygiiformes*, p. 25.]

PATTERSON, R. L. Birds of Rathlin Island, Antrim. Irish Nat. i, pp. 50-53, 70-73, 85, & 86.

——. [See *Procellariiformes*, p. 32; *Coraciidæ*, p. 41.]

PELZELN, A. VON [THE LATE]. Obituary Notice. Ibis, 1892, pp. 188-190; Auk, ix, pp. 74 & 75.

PERZINA, E. Wiener Trivialnamen. Orn. Jahrb. iii, pp. 66-71.

PETERS, E. Die Vögel Curaçaos nach meinem Journalnotizen vom 21 August bis 5 Sept. 1890. J. f. O. 1892, pp. 104-122.

PIGOTT, D. London Birds and London Insects. Roy. 8vo, 1892, pp.

PLESKE, T. Die ornithologische Ausbeute der Expedition der Gebrüder G. und M. Grum-Grzimaïlo nach Central Asien (1889-90). Mém. biol. xiii, livr. 2, pp. 273-301.

[*Phasianidæ*, p. 26; *Turdidæ*, p. 57.]

——. Ornithographia Rossica. Die Vogelfauna des Russischen Reichs. Bd. ii, Lief. v (*Locustella*, *Cettia*, *Urosphena*), pp. xli-liv & 561-666, taf. iv.

[*Sylviidæ*, p. 57.]

PRAIN, D. Fauna of Narcondam and Barren Island. J. A. S. B. 1892, pp. 109-120. Birds, pp. 111-114.

PRATT, A. E. The Snows of Tibet. London: 1892, 8vo. Birds, pp. 235-237.

1892. [VOL. XXIX.]

QUELCH, J. J. Avifauna of Georgetown (British Guiana). Journ. Agr. & Comm. Soc. Brit. Guian. (2) vi, pp. 182 & 183.

——. Additions to the Avifauna of British Guiana. *T. c.* p. 186.

——. [See also *Accipitriformes*, p. 37 ; *Cotingidæ*, p. 62.]

RABÉ, DR. Observations sur les passages d'oiseaux dans le département de l'Yonne. Bull. Soc. Yonne, xlv, pp. 1-44.

RAEBURN, H. Some Further Notes on the Summer Birds of Shetland. P. Phys. Soc. Edinb. xi, pt. 1, pp. 67-73.

——. [See also WINGE, H.]

RALFE, P. Birds of the Isle of Man. Zool. 1892, pp. 93-100.

REICHENOW, A. Zur Vogelfauna von Kamerun. Erster Nachtrag. J. f. O. 1892, pp. 176-195, tab. ii.

[*Ralliformes*, p. 30; *Columbiformes*, p. 28; *Coliidae*, p. 46; *Capitones*, p. 48; *Muscicapidae*, p. 60; *Campophagidae*, p. 60; *Laniidae*, p. 56; *Eulabetidae*, p. 50; *Ploceidae*, p. 51; *Pycnonotidae*, p. 59; *Nectariniidae*, p. 54; *Zosteropidae*, p. 55; *Sylviidae*, p. 58; *Timeliidae*, p. 59; *Turdidae*, p. 57.]

——. Zur Vogelfauna von Togoland. Nachtrag. *T. c.* pp. 233-236.

——. [See also *Columbiformes*, p. 28; *Perdiciidae*, p. 27; *Phalacrocoraces*, p. 36; *Capitones*, p. 48; *Colii*, p. 46; *Indicatoridae*, p. 48; *Caprimulgi*, p. 44; *Ploceidae*, p. 46; *Fringillidae*, p. 53; *Nectariniidae*, p. 54; *Zosteropidae*, p. 55; *Laniidae*, p. 56; *Turdidae*, p. 56; *Sylviidae*, p. 58; *Pycnonotidae*, p. 59; *Muscicapidae*, p. 60; *Hirundinidae*, p. 61.]

RENDALL, P. Notes on the Ornithology of the Gambia. Ibis, 1892, pp. 215-230.

RHOADS, S. N. The Breeding Habits of the Florida Burrowing Owl (*Speotyto cunicularia floridana*). Auk, ix, pp. 1-8.

——. The Birds of South-eastern Texas and Southern Arizona observed during May, June, and July, 1891. P. Ac. Philad. 1892, pp. 98-126.

RIDGWAY, R. [See *Trochili*, p. 45.]

RODICZKY, E. VON. Volkswirtschaftliche Bedeutung der Geflügelzucht in Ungarn. C.R. ii, Congr. Orn. Intern. ii, pp. 190-197.

ROTHSCHILD, W. Descriptions of Seven New Species of Birds from the Sandwich Islands. Ann. N. H. (6) x, pp. 108-112.

[See *Anseriformes*, p. 35; *Drepanidae*, p. 52; *Fringillidae*, p. 52; *Meliphagidae*, p. 54; *Sylviidae*, p. 57.]

——. [See also *Columbiformes*, p. 29; *Anseriformes*, p. 35.]

RUSS, K. Ueber die Nest- und Jugendkleider in der Gefangenschaft gezüchteter fremländischer Vögel nebst angeben über Nestbau, Gelege, Verfärbung, und Geschlechts-Verschiedenheiten. C.R. ii, Congr. Orn. Intern. ii, pp. 129-136.

- RUZSKIÏ, M. Kratkii otchet ob ornitologicheskikh izslyedovaniyakh Kazanskoï ghubernii. Protok. obsch. estest. Kazan, 1890-91 (1891), No. 126, 13 pp.
- RZEHAKE, E. C. F. Oesterreichisch-schlesisches Vogel-Idiotikon. Orn. Jahrb. iii, pp. 114-118.
- ST. MAURICE, ABBAYE DE. [See BESSE & ST. MAURICE.]
- SALVADORI, T. Uccelli di Engano raccolti dal dott. Modigliani. Ann. Mus. Genov. (2) xii, pp. 123-142.  
[See *Campophagidæ*, p. 60; *Zosteropidæ*, p. 55; *Turdidæ*, p. 56; *Eulabetidæ*, p. 50; *Columbiformes*, p. 29.]
- . Viaggio di Lamberto Loria nella Papuasias Orientale. I. Uccelli della Nuova Guinea Meridionale-Orientale e delle Isole Heath E Killerton. II. Uccelli delle Isole D'Entrecasteaux. III. Collezioni Ornitologiche. T. c. pp. 797-834.
- . [See also *Columbiformes*, p. 29; *Conurinae*, p. 47; *Pioninae*, p. 47; *Paridæ*, p. 55.]
- SALVIN, O. Catalogue of the *Picariæ* in the Collection of the British Museum. Upupæ, Trochili. [Vol. xvi of the Catalogue of Birds.] London: 8vo, 1892, pp. 1-433, pls. i-ix.  
[*Upupæ*, p. 43; *Trochili*, p. 45.]
- . [See also GODMAN & SALVIN.]
- & GODMAN, F. D. Biologia Centrali-americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. London: 1892, 4to, *Aves*, pts. xcix, c, & cii-cv, pp. 193-368, pls. xlix-lvii.  
[*Formicariidæ*, p. 62; *Trochili*, p. 45.]
- & ——. On a Collection of Birds from Central Nicaragua. Ibis, 1892, pp. 324-328.  
[*Trochili*, p. 46; *Certhiidæ*, p. 54.]
- SANDMAN, J. A. Fågelfaunan på Karlö och Kringliggande Skäv. Med. Soc. Fenn. xvii, pp. 187-272.
- SAUNDERS, H. [See *Procellariidæ*, p. 31; *Stercorariidæ*, p. 32.]
- SCHAECK, F. DE. Les variétés d'oiseaux du Muséum de Paris. C.R. ii, Congr. Orn. Intern. ii, pp. 81-91.
- . Drei Woher in der Nähe von Fontainebleau. Orn. Jahrb. iii, pp. 24-27.
- . [See also *Perdicidæ*, p. 27.]
- SCHAEFF, E. Die Excursion nach dem Hanság und dem Neusiedler-See. C.R. ii, Congr. Orn. Intern. ii, pp. 198-201.
- SCHOLLMAYER, —. Beiträge zur Ornithologie Krains. [Zool. Rec. xxviii, *Aves*, p. 25.]

SCHÖPWINKEL, A. Die Vogelwelt der Grafschaft Wernigerode. Schr. Ver. Harzes. vi, pp. 1-62.

SCHRADER, G. Ornithologischer Beobachtungen auf meinen Sammelreisen. Orn. Jahrb. iii, pp. 11-19 & 43-54. [Zool. Rec. xxviii, *Aves*, p. 25.]

SCHULZ, F. [See STEMPLEMAN, H.]

SCLATER, P. L. On a Collection of Birds from the Island of Anguilla, West Indies. P. Z. S. 1892, pp. 498-500.

——. [See also JAMES, H. B.]

——. [See also *Columbiformes*, p. 29; *Fringillidæ*, p. 52.]

SCLATER, W. L. On the Indian Museum and its Collection of Birds. Ibis, 1892, pp. 65-87.

A valuable memoir, giving a list of the types still extant in the Indian Museum, Calcutta.

SCOTT, W. E. D. Observations on the Birds of Jamaica. I. A list of the Birds recorded from the island, with annotations. [Zool. Rec. xxviii, *Aves*, p. 25.] Auk, ix, pp. 120-129, 273-277, & 369-375.

——. Notes on the Birds of the Caloosahatchie Region of Florida. *T. c.* pp. 209-218.

——. [See *Ardeidæ*, p. 34.]

SEBISANOVIC, G. Ornitološko-mamaložke vesti iz varždinske okohee. Glasnik Naravosl. Druž. iii, pp. 236-248 (1888).

——. Ornitoloska viest iz varazdinstrog Kraja za. god. 1889. *Op. cit.* iv, pp. 312-315, 1889.

SEEBOHM, H. List of the Birds of Heligoland as recorded by Herr Gätke. Ibis, 1892, pp. 1-32.

——. On the Birds of Tsu-sima, Japan. *T. c.* pp. 87-89.

——. Further additions to the Avifauna of Tsu-sima, in the Japanese Empire. *T. c.* pp. 399 & 400.

[*Piciformes*, p. 49.]

——. [See also *Scolopacidæ*, p. 33; *Phasianidæ*, p. 26; *Piciformes*, p. 49; *Sylviidæ*, p. 57.]

SENNETT, G. B. [See *Meleagridæ*, p. 28.]

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. *Coraciæ* and *Halcyones*. *Leptosomatidæ* [*q.v.* p. 41], *Coraciidæ* [*q.v.* p. 41], *Meropidæ* [*q.v.* p. 43], *Alcedinidæ* [*q.v.* p. 41], *Momotidæ* [*q.v.* p. 43], *Todidæ* [*q.v.* p. 43], *Coliidæ* [*q.v.* p. 46.] 1892, pp. 1-345, pls. i-xii. [Vol. xvii of The Catalogue of Birds.]

[SHARPE, R. B.] On the Birds collected by Mr. F. J. Jackson, F.Z.S., during his recent expedition to Uganda, through the territory of the Imperial British East African Company. [Zool. Rec. xxviii, *Aves*, p. 26.] With notes by the Collector. Part III. Ibis, 1892, pp. 152-164, pl. iv.

[*Muscicapidæ*, p. 61; *Sylviidæ*, p. 58.]

— Part IV. *T. c.* pp. 299-322, pl. vii.

[*Muscicapidæ*, p. 61; *Capitones*, p. 48; *Meropes*, p. 43.]

— Part V. *T. c.* pp. 534-555, pl. xiv.

[*Perdiciidæ*, p. 27.]

— Descriptions of New Species of Birds discovered by Mr. C. Hose on Mount Dulit in N. W. Borneo. *T. c.* pp. 322-324.

[*Podargi*, p. 40; *Zosteropidæ*, p. 55; *Turdidæ*, p. 56; *Capitones*, p. 48.]

— On a Collection of Birds from Mount Dulit, in North Western Borneo. *T. c.* pp. 430-442, pls. x & xi.

[*Campophagidæ*, p. 60; *Eurylæmi*, p. 49; *Capitonidæ*, p. 48.]

— [See also *Rallidæ*, p. 30; *Striges*, p. 40; *Falconidæ*, p. 39; *Corvidæ*, p. 50; *Oriolidæ*, p. 51; *Eulabetidæ*, p. 50; *Timeliidæ*, p. 59; *Fringillidæ*, p. 53; *Sylviidæ*, p. 58; *Muscicapidæ*, p. 60; *Campophagidæ*, p. 60; *Pycnonotidæ*, p. 59; *Eurylæmi*, p. 49.]

SHARPE, R. B., & WYATT, C. W. A Monograph of the *Hirundinidæ*, or Family of Swallows. Part xv. 1892, 4to.

[*Hirundinidæ*, p. 61.]

SHELLEY, G. E. [See *Paridæ*, p. 55; *Zosteropidæ*, p. 55; *Nectariniidæ*, p. 54.]

SHUFELDT, R. W. A Study of the Fossil Avifauna of the Equus Beds of the Oregon Desert. J. Ac. Philad. ix, pp. 389-425, pls. xv-xvii.

[*Lariformes*, p. 32; *Ralliformes*, p. 31; *Tetraonidæ*, p. 27; *Pelargiformes*, p. 34; *Phanicopteriformes*, p. 35; *Accipitriformes*, p. 38; *Icteridæ*, p. 51.]

— Concerning the Taxonomy of the North American Pygopodes, based upon their osteology. J. Anat. Phys. xxvi, pp. 199-203.

[See also *Trochili*, p. 46.]

SIBREE, J. On the Birds of Madagascar, and their connection with native Folklore, Proverbs, and Superstitions. [Zool. Rec. xxviii, *Aves*, p. 27.] Part IV. Ibis, 1892, pp. 103-119.

— The same. Part V. *T. c.* pp. 261-274.

SJÖSTEDT, Y. Neue Vogelarten von Kamerun. J. f. O. 1892, pp. 313 & 314.

[*Cuculi*, p. 47; *Pici*, p. 49; *Ploceidæ*, p. 51.]

SLATER, H. H. [See DE LA TOUCHE, J. D.]

- STEJNEGER, L. Two additions to the Japanese Avifauna, including description of a new species. P. U. S. Nat. Mus. xv, pp. 371-373.  
[*Scolopacidæ*, p. 33 ; *Sylviidæ*, p. 57.]
- STEMPLEMANN, H., & SCHULZ, F. Enumeración de las Aves de la provincia de Córdoba República Argentina. Bol. Ac. Arg. pp. 393-408, x, 4A, 1890.
- STONE, W. Birds collected by the West Greenland Expedition. P. Ac. Philad. 1892, pp. 145-152.
- STOSSICH, M. I distomi degli uccelli. Boll. Soc. Adr. xiii, pp. 143-194.
- STRUGNELL, W. B. [See WITCHELL & STRUGNELL.]
- STUDER, TH., & FATIO, V. Katalog der schweizerischen Vögel und ihrer Verbreitungsgebiete. 8vo, 70 pp., with map.
- SYTAN, F. W. [See *Perdiciidæ*, p. 27 ; *Corvidæ*, p. 50 ; *Sylviidæ*, p. 58 ; *Muscicapidæ*, p. 61.]
- SUCHETET, A. Oiseaux hybrides rencontrés à l'état sauvage. III<sup>e</sup> Partie. Les Passereaux [Zool. Rec. xxviii, *Aves*, p. 29]. Bull. Soc. Z. Fr. (2) v, pp. 253-352, 352-524.
- TINKLER, JOHN E. The Avifauna of Arkengarthdale, Swaledale, and the New Forest. Nat. 1892, pp. 309-325.
- TIPPENHAUER, L. Die Insel Haiti. Leipzig : 4to, 1893 (1892), xviii & 693 pp., 32 pls., *Aves*, pp. 317-323.
- TRISTRAM, H. B. On two small collections of Birds from Bugotu and Florida, two of the smaller Solomon Islands. Ibis, 1892, pp. 293-299.  
[*Campophagidæ*, p. 60.]
- . [See also *Nestoridæ*, p. 47.]
- TRUMBULL, G. [See *Anseriformes*, p. 36.]
- TSCHUSI-SCHMIDHOFFEN, V. RITTER VON. Am Velenezeer und Kleinen Balatonsee. C.R. ii, Congr. Orn. Intern. ii, pp. 202-209.
- . August von Pelzeln. Obituary Notice. Orn. Jahrb. iii, pp. 1-11.
- . Ueber die Anlegung von Privat-Sammlungen. T. c. pp. 71-73.
- . Pfarrer Carl (P. Blasius), Hanf. Obituary Notice. T. c. pp. 87-97.
- . Ornithologische Miscellen. T. c. pp. 254-256.
- . [See also *Pterocletes*, p. 28.]
- VALENTINITSCH, F. [See *Tetraonidæ*, p. 26.]
- VALLON, G. Seltenheiten der italienische Ornis. Orn. Jahrb. iii, pp. 97-108.
- . Escursioni Ornitologiche nel Trentino. Boll. Soc. Adr. xiii, pp. 117-141.

- VAN DYCK, W. T. [See *Nectariniidæ*, p. 54.]
- VORDERMAN, A. G. Java Vögels, I. Nat. Tijdschr. Nederl. Ind. li, Afl. 4, pp. 373-416.
- . Bijdrage tot de kennis der Avifauna van het Eiland Bawean. T. c. pp. 417-422.
- WAITE, E. R. Sterna and Shoulder Girdle of Birds. Tr. Leeds Nat. Club, ii, p. 67.
- WALKER, J. J. The Bird life of Adèle Island, North-West Australia. Ibis, 1892, pp. 254-261.  
[*Sulæ*, p. 36; *Fregati*, p. 36.]
- WALLACE, A. R. Island Life. Second Edition. London: 8vo, xx & 563 pp.
- \*WALTERS, ALAN. Palms and Pearls; or, Scenes in Ceylon. London: 8vo, 1892, pp.
- WESTERN, R. W. The tactics adopted by certain Birds when flying in the wind. P. R. Soc. Edinb. pp. 76-80, pl. xviii.
- WHYMPER, E. Travels amongst the Great Andes of the Equator, with Supplementary Appendix. London: 1892, 2 vols., 8vo.
- WILSON, S. B., & EVANS, A. H. Aves Hawaienses: The Birds of the Sandwich Islands. Part III. 1892, 4to.  
[*Drepanidæ*, p. 52; *Scolopacidæ*, p. 33.]
- WINGE, H. Fuglene ved de danske Fyr i 1890. Vid. Medd. 1891, pp. 61-132.
- . On the Breeding of the Sand Grouse in Captivity in Denmark. Op. cit. 1892, pp. 126-130. [Translated by H. Raeburn, Zool. 1892, pp. 341-345.]
- WITCHELL, C. A. Bird-song and its Scientific Value. P. Cottesw. Nat. F. C. x, pp. 238-257.
- WITCHELL, C. A., & STRUGNELL, W. B. The Fauna and Flora of Gloucestershire. Stroud: 1892, roy. 8vo, i-xxiv & 1-300 pp.
- WOLF, T. Geografía y Geología del Ecuador. 8vo, xii & 671 pp.  
[Notes on the Birds, pp. 456-460.]
- WOLLEY-DOD, C. [See *Cuculidæ*, p. 47.]
- WURM, W. Über die Farben der Vogelfedern. JH. Ver. Württ. xlviii, pp. xli-xlvi.
- WYATT, C. W. [See SHARPE & WYATT.]
- YOUNG, C. J. Notes on the Natural History of the Blue Mountain, Co. of Leeds, Ontario. Ottawa Nat. p. 45.
- ZIEGLER, J. Tierphänologische Beobachtungen zu Frankfurt a. Main. Ber. Senck. Ges. 1892, pp. 47-69.

## SPECIAL SUBJECTS.

## II.—FAUNISTIC.

PALÆARCTIC REGION. See Alessi, Aplin, Bonvalot, Brusina, Campbell, Collett, Dresser, Dybowski, Fatio, Gätke, Giglioli, Hartert, Hartlaub, Ijima, Kaiser, Kerville, Koenig, Lilford, Lorenz, Macpherson, Oustalet, Pleske, Pratt, Schrader, Seebohm, Stejneger, Studer, Tschusi, Winge.

ETHIOPIAN REGION. See Bocage, Büttikofer, Eglington, Homeyer, Nicholls, Ogilvie-Grant, Reichenow, Rendall, Sharpe, Shelley.

INDIAN REGION. See Brooks, Büttikofer, Davison, De la Touche, Oustalet, Salvadori, Sharpe, Vorderman.

AUSTRALIAN REGION. See Buller, Büttikofer, Campbell, Collett, De Vis, Forbes, Meyer, North, Rothschild, Salvadori, Tristram, Wilson.

NEARCTIC REGION. See Allen, "Anon.", Anthony, Bendire, Bryant, Cory, Keeler, Loomis, Merriam, Packard.

NEOTROPICAL REGION. See Alfaro, Allen, Berlepsch, Boucard, Chapman, Cherrie, Cory, Godman, Hartert, Holland, Hudson, Kerr, Peters, Quelch, Salvin, Selater, Scott, Tippenhauer, Wolf.

## III.—ANATOMY AND MISCELLANEOUS.

ANATOMY. See Beddard, Couvreur, Dareste, Fabani, Fürbringer, Helm, Klug, Parker.

OSTEOLOGY. See Beddard, Meyer.

OOLOGY. See Bendire, Blasius, Crowley, Hall, Hewetson, North.

NEO-OOLOGY. See Evans.

PTERYLOGRAPHY. See Church, Ficalbi, Keeler, Martorelli.

FOSSIL BIRDS. See Déperet, Forbes, Lydekker, Milne-Edwards, Shufeldt.

BIOGRAPHY. See Boucard, Burmeister, Büttikofer, Pelzeln, Tschusi-Schmidhoffen.

LITERATURE. See Perzina, Selater (W. L.).

CLASSIFICATION. See Fürbringer, Gadow, Mivart.

GEOGRAPHICAL DISTRIBUTION. See Giglioli, Palacky.

MIGRATION. See Cordeaux, Czýnk, Dixon.

## IV.—SYSTEMATIC.

## Subclass RATITÆ.

## Order STRUTHIONIFORMES.

See NICOLLS, J. A., & EGLINGTON, W.

## Order CASUARIIFORMES.

*Dromaius gracilipes*, n. sp. (fossil); C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 445-448, pl. xxiii, figg. 7a & 7b.

## Order DINORNITHIFORMES.

FIELD, H. C. Discoveries of Moa Bones. Tr. N. Z. Inst. xxiv, pp. 558-561.

HUTTON, F. W. On the Moas of New Zealand. T. c. pp. 93-172, pls. xv-xvii.

*Dinornis potens*, n. sp. (= *D. ingens*, var. *robustus*, Owen), p. 115; *Tylopteryx*, n. subg. *D. (T.) torosus*, n. sp. (= *D. gracilis*, Haast), p. 116; *Palapteryx plenus*, n. sp., p. 122 (= *P. dromioides*, Owen). *Anomalopteryx antiquus*, p. 124, n. sp.; *Mesopteryx*, n. g., p. 129, *Euryapteryx ponderosus*, p. 137 (= *Dinornis gravis*, Hutton), *E. pygmaeus*, p. 139, n. spp.

*D. potens*, *D. torosus*; *P. dromioides*; *Anomalopteryx didiformis*; *Cela curtus*; *Syornis crassus*; *Mesopteryx didinus*; *Euryapteryx ponderosus*: bones figured. *Id. ut supra*.

LYDEKKER, R. The History of the Moas, or Extinct Flightless Birds of New Zealand. Nat. Sci. i, pp. 588-595.

*Palaeocasuarius*, n. g. (fossil). Type, *P. elegans*, n. sp., New Zealand; H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 189.

## Order ÆPYORNITHIFORMES.

See NEWTON, R. B., Geol. Mag. (3) x, pp. 197 & 198.

*Æpyornis medius*?, egg of; P. L. SCLATER, P. Z. S. 1892, p. 299.

## Order APTERYGIFORMES.

PARKER, T. J. Observations on the Anatomy and Development of the *Apteryx*. P. R. Soc. p. 340; *id.* Phil. Trans. clxxxii B, pp. 25-134, pls. viii-xix.

*Apteryx maxima*, notes on; W. L. BULLER, Tr. N. Z. Inst. xxiv, p. 91.

*Metapteryx*, n. g. Type, *M. bifrons*, n. sp. (fossil), Queensland; C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 448-454, pl. xxiii, figg. 8a & 8b.

## Subclass CARINATÆ.

## Order CRYPTURIFORMES.

*Nothoprocta moribiusi*, n. sp., Bolivia, H. VON BERLEPSCH, Ber. Allg. Deutschl. Orn. Ges., Dec. 1892, p. 13.

*Crypturus garleppi*, n. sp., Bolivia, *id. t. c.* p. 12.

## Order GALLIFORMES.

BENDIRE, C. Life Histories of North American Birds, with special reference to their Breeding Habits and Eggs. U.S. Nat. Mus., Special Bulletin, No. 1, Washington, 1892, 4to, figs.; eggs of *Colinus virginianus* (pl. i, fig. 1); *Oreortyx pictus plumiferus* (pl. i, figs. 2

& 3); *Callipepla squamata* (pl. i, figs. 4 & 5), *C. squamata castanogastris* (pl. i, figs. 6 & 7), *C. californica* (pl. i, figs. 8-10), *C. gambeli* (pl. i, figs. 11-14); *Cyrtonyx montezumæ* (pl. i, fig. 15); *Dendragapus obscurus fuliginosus* (pl. i, figs. 16-19), *D. canadensis* (pl. i, figs. 20-23); *Bonasa umbellus* (pl. ii, fig. 1), *B. umbellus togata* (pl. ii, fig. 2), *B. umbellus umbelloides* (pl. ii, fig. 3), *B. umbellus sabini* (pl. ii, fig. 4); *Lagopus lagopus* (pl. ii, figs. 5-10), *L. rupestris* (pl. ii, figs. 11-15), *L. leucurus* (pl. ii, figs. 16 & 17); *Tympanuchus americanus* (pl. ii, figs. 18-20), *T. cupido* (pl. iii, fig. 2), *T. pallidicinctus* (pl. iii, fig. 1); *Pediocates phasianellus* (pl. iii, figs. 3-5), *P. phasianellus columbianus* (pl. iii, figs. 6-8), *P. phasianellus campestris* (pl. iii, figs. 9 & 10); *Centrocercus urophasianus* (pl. iii, figs. 11-13).

#### Suborder CRACES.

*Ortalis vetula macalli*: egg figured; C. BENDIRE, *t. c.* pl. iii, fig. 16.  
*Penelope purpurascens*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxviii.

#### Suborder PHASIANI.

##### Family PHASIANIDÆ.

*Crossoptilon leucurum*, n. sp., E. Thibet; H. SEEBOHM, Bull. B. O. C., No. 4, p. xvii.  
*Rheinhardius phœnix*, nom. emend. [?], pro *R. ocellata* (Verr.); A. BUCARD, Humming Bird, ii, pp. 10-12.  
*Phasianus satcheuensis*, n. sp., North of Nian Schan Mountains; TH. PLESKE, Mém. Biol. xiii, livr. 2, pp. 296 & 297.  
*P. tarnovskii*, n. sp., Zarafshan, Central Asia; H. SEEBOHM, P. Z. S. 1892, p. 271.

##### Family TETRAONIDÆ.

See BENDIRE, C., *ut supra*, p. 25.

MILLAIS, J. G. Game Birds and Shooting-sketches; illustrating the habits, modes of capture, stages of plumage, and the hybrids and varieties which occur amongst them. London: 1892, roy. 4to, 72 pp., xv pls.

VALENTINITSCH, F. Das Haselhuhn (*Tetrao bonasia*). Dessen Naturgeschichte und Jagd. Eine ornithologische und jädliche Monographie. 8vo, xii & 288 pp., pls. 1-4. [Orn. Jahrb. iii, pp. 82 & 83.]

*Lagopus lagopus*, in Maine; H. MERRILL, Auk, p. 300: in the Faroe Is.; H. W. FEILDEN, Zool. 1892, p. 413.

*Bonasia bonasia*, skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxx.

*Pediocetes nanus*, n. sp. (fossil), Pliocene of Oregon; R. W. SHUFELDT, J. Ac. Philad. ix, p. 414.

- Palæotetrix*, n. g. Type, *P. gilli*, n. sp. (fossil), Equus Beds, Oregon ; R. W. SHUFELDT, J. Ac. Philad. ix, p. 416.  
*Dendragapus obscurus fuliginosus*, its food ; L. BELDING, Zœe, iii, pp. 232 & 233.

## Family PERDICIDÆ.

## Subfamily PERDICINÆ.

- NICOLLS, J. A., & EGLINGTON, W. The Sportsman in South Africa. 8vo, 1892.  
 The Francolins and Quails described, and many of them figured (pp. 100-106, pls. i & xi).  
*Tetraogallus henrici*, n. sp., Tà-tsién-lou ; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 295.  
*Palæortyx ocyptera*, n. sp. (fossil), Eocene of S. France ; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 71 & 72. *P. cayluxensis*, n. sp. (fossil), *id. t. c.* p. 72.  
*Palæocryptonyx donnezani*, n. sp. (fossil), Pliocene of France ; C. DÉPERET, C.R. cvi, p. 690.  
*Perdix hispaniolensis*, n. sp., Spain ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges. xi, p. 5.  
*Francolinus* and *Pternistes* : notes on these genera ; W. R. OGILVIE-GRANT, Ibis, 1892, pp. 32-55, pl. i.  
*F. vulgaris* : its range ; F. DE SCHAECK, Orn. Jahrb. iii, pp. 108-112.  
*F. subtorquatus stuhlmanni*, n. subsp., Victoria Nyanza, A. REICHENOW, J. f. O. 1892, pp. 17 & 18. *F. uluensis*, n. sp., Ukambani, W. R. OGILVIE-GRANT, Ibis, 1892, p. 44. *F. sharpii*, n. sp., Abyssinia, *id. t. c.* p. 47. *F. jacksoni* [Zool. Rec. xxviii, *Aves*, p. 35], figured, *id. t. c.* pl. i. *F. gedgii*, figured, R. B. SHARPE, Ibis, 1892, pl. xiv.  
*Caloperdix borneensis*, n. sp., Mt. Dulit, Borneo, W. R. OGILVIE-GRANT, Bull. B. O. C. ii, p. v. *C. sumatrana*, n. sp., Sumatra, *id. ibid.*  
*Bambusicola* : notes on the genus ; *id.* Ibis, 1892, pp. 387-389.  
*Arboricola* : notes on the genus ; *id. t. c.* pp. 390-399. *A. gingiva*, figured ; *id. t. c.* p. ix. *A. ardens*, n. sp., Hainan ; F. W. STYAN, Bull. B. O. C. ii, p. vi.  
*Coturnix* : notes on the genus ; W. R. OGILVIE-GRANT, Ann. N. H. (6) x, pp. 166-173.  
*Coturnix communis*, in Wigtownshire ; P. ADAIR, Ann. Scott. Nat. Hist. i, pp. 168-171 : nesting in N. Devon ; F. H. C. GOULD, Zool. 1892, p. 427. *C. emini* [Zool. Rec. xxviii, *Aves*, p. 36], figured ; A. REICHENOW, J. f. O. 1892, tab. i, fig. 3. [Is *C. adansoni*, W. R. OGILVIE-GRANT, *ut supra*.]

## Subfamily ODONTOPHORINÆ.

- Oreortyx pictus plumiferus* : its food ; R. BELDING, Zœe, iii, pp. 233 & 234.

*Odontophorus guianensis* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxix.

*Eupsychortyx gouldi*, n. sp., Curaçao ; H. VON BERLEPSCH, J. f. O. 1892, pp. 98-101.

### Family MELEAGRIDÆ.

*Meleagris gallopavo ellioti*, n. subsp., Rio Grande, Texas ; G. B. SENNETT, Auk, ix, pp. 167-169, pl. iii. *M. gallopavo* (fig. 14) and *M. gallopavo mexicana* (fig. 15) : eggs figured ; C. BENDIRE, Life Histories N. A. Birds, pl. iii.

### Suborder HEMIPODII.

See NICOLLS, J. A., & EGLINGTON, W.

*Turnix nigricollis* : sexual differences ; W. R. OGILVIE-GRANT, Ibis, 1892, pp. 346 & 347 : nesting in captivity ; LORD LILFORD, t. c. pp. 466 & 467.

### Suborder PTEROCLETES.

See NICOLLS, J. A., & EGLINGTON, W.

*Syrhaptus paradoxus* : notes on the incursion of 1891 ; V. RITTER VON TSCHUSI ZU SCHMIDHOFFEN, Orn. Jahrb. iii, pp. 118-122 : in the North of France ; M. DUBOIS, Bull. Soc. L. Nord France, ix, pp. 11 & 12.

*Pterocles coronata*, in Tunis ; J. CABANIS, Ber. Allg. Deutschl. Orn. Ges., Sept. 1892, p. 5. *P. varius* and *P. larvatus*, n. spp. (fossil), Eocene of S. France, A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 70 & 71.

### Order COLUMBIFORMES.

BENDIRE, C. Life Histories of North American Birds, with special reference to their Breeding Habits, and Eggs. U. S. Nat. Mus. Special Bulletin, No. 1, Washington, 1892, 4to.

Eggs of the following species are figured :—*Columba fasciata* (pl. iii, fig. 17). *C. fasciata viosœ* (pl. iii, fig. 18), *C. flavirostris* (pl. iv, fig. 2), *C. leucocephala* (pl. iv, fig. 4) ; *Ectopistes migratorius* (pl. iv, fig. 6) ; *Zenaidura macrura* (pl. iv, figs. 8 & 9) ; *Zenaida zenaida* (pl. ii, fig. 21) ; *Engyptila albifrons* (pl. ii, fig. 22) ; *Melopelia leucoptera* (pl. ii, fig. 23) ; *Columbigallina passerina pallescens* (pl. ii, fig. 24) ; *Scurdafella inca* (pl. ii, fig. 25) ; *Geotrygon montana* (pl. ii, fig. 26).

*Columba domestica* × *Turtur risorius* ; H. GADEAU DE KERVILLE, Bull. Soc. Rouen (3) xxvii, pp. 195-199. *C. domestica* : its parasites ; C.R. Soc. Biol. (9) iv, pp. 49-53.

*Haploperia inornata*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutschl. Orn. Ges., Feb. 1892, p. 6 ; *id.*, J. f. O. 1892, p. 179.

- Turtur* : notes on the African species of the genus ; A. REICHENOW, J. f. O. 1892, pp. 12-15.
- Leucosarcia picata* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxvii.
- Carpophaga aethorax*, n. sp., I. of Engano, T. SALVADORI, Ann. Mus. Genov. (2) xii, pp. 130 & 140.
- Myristicivora luctuosa* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxvi.
- Ptilopus coronulatus huonensis*, n. subsp., Huon Gulf, E. New Guinea ; *id.* J. f. O. 1892, pp. 263 & 264. *P. salvadorii*, n. sp., Jobi I, W. ROTHSCCHILD, Bull. B. O. C. iii, p. x. *P. tristrami*, n. sp., Marquesas Is., T. SALVADORI, Boll. Mus. Zool. Tor. vii, pp.
- Iotreron melanospila* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxv, fig. 1.
- Phlogoenas bimaculata*, n. sp., Makassar, T. SALVADORI, Bull. B. O. C., No. 3, p. 8. *P. albicollis*, n. sp., Box I, *id. t. c.* p. x.
- Macropygia albicapilla* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxv, fig. 2.
- Macropygia cinnamomea*, n. sp., I. of Engano, T. SALVADORI, Ann. Mus. Genov. (2) xii, pp. 140 & 141.
- Zenaida richardsoni*, = *Z. zenaida* ; C. R. CORY, Cat. W. Ind. Birds, p. 138.
- Columbigallina passerina terrestris*, n. subsp., E. United States, F. M. CHAPMAN, Bull. Am. Mus. iv, p. 293.
- Geophaps scripta* : notes on nestlings ; P. L. SCLATER, P. Z. S. 1892, pp. 76 & 77.
- Osmotreron griseicauda* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxiv.

## Order OPISTHOCOMIFORMES.

### Suborder OPISTHOCOMI.

- Opisthocomus cristatus*, crop and sternum of : a contribution to the question of the correlation of organs and the inheritance of acquired characters ; H. GADOW, P. R. Irish Ac. (3) ii, pp. 147-154, pls. vii & viii.

### Suborder PSEUDOPISTHOCOMI.

- Filholornis*, n. g. Type, *F. paradoxa*, n. sp. (fossil), Eocene of S. France ; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 67 & 68. *F. gravis* and *F. debilis*, n. spp., *id. t. c.* p. 69.

## Order RALLIFORMES.

- Elaphrocnemus*, n. g. Type, *E. phasianus*, n. sp., Eocene of S. France ; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 77 & 78. *E. gracilis* and *E. crex*, n. spp., *id. t. c.* pp. 78 & 79.

- Orthocnemus*, n. g. Type, *O. gallicus*, n. sp. (fossil), Eocene of S. France; *id. t. c.* pp. 74 & 75. *O. cursor*, n. sp., *id. t. c.* p. 76. *O. major*, n. sp., *id. t. c.* pp. 76 & 77.
- Rallus dasypus*, n. sp. (fossil), *id. t. c.* pp. 73 & 74. *R. arenarius*, n. sp., *id. t. c.* p. 74. *R. longirostris cubanus*, n. subsp., Cuba, F. M. CHAPMAN, Bull. Am. Mus. iv, pp. 288 & 289.
- Cabalus modestus*, Hutton, is the young of *C. dieffenbachii*, Gray; H. O. FORBES, Bull. B. O. C., No. 4, p. xx. [Cf. H. O. FORBES, Bull. B. O. C. ix, p. xxxix.]
- Aramides plumbeicollis*, n. sp., Costa Rica, J. C. ZELEDON, Ann. Mus. Costa Rica, iii, p. 134.
- Crecoides*, n. n. for *Crecioides*, Shuf.; SHUFELDT, J. Ac. Philad. ix, pp. 411 & 412, notes.
- Porzana bailloni*, in Herefordshire; W. H. M. AYRES, Zool. 1892, p. 27: in Yorkshire; J. BACKHOUSE, Nat. 1892, p. 308: in Somersetshire; H. ST. B. GOLDSMITH, Zool. 1892, p. 412.
- Porzanula*, n. g. Type, *P. palmeri*, n. sp., Laysan I., North Pacific; F. W. FROHAWK, Ann. N. H. (6) ix, pp. 247-249.
- Rallus ecaudatus*, King, and *R. sandwicensis*, Gm., belong to the genus *Pennula*; G. HARTLAUB, Abh. Ver. Brem. xii, heft. 3, pp. 395-397.
- Porzanula* (ut *suprà*) = *Pennula*; *id. t. c.* p. 399.
- Rallus sandwichensis*, is a *Pennula*, and probably = *P. ecaudata*, King; R. B. SHARPE, Bull. B. O. C., No. 4, p. xx. [Cf. HARTLAUB, *op. cit.* No. 5, p. xxiv, and SHARPE, *op. cit.* No. 5, p. xxiv.]
- Kittlitzia*, n. g. [but cf. HARTERT, Zool. Rec. xxviii, *Aves*, p. 57]. Type, *Rallus monasa*, Kittl., from Ualan; G. HARTLAUB, Abh. Ver. Brem. xii, heft. 3, p. 391.
- Aphanolimnas*, n. n. pro *Kittlitzia*, Hartl. (*nec* Hartert); R. B. SHARPE, Bull. B. O. C., No. 4, p. xx (Dec., 1892).
- Corethrura elegans*, from the Cameroons; A. REICHENOW, J. f. O. 1892, pp. 178 & 179.
- Ocydromus insignis*, n. sp. (subfossil), Chatham Is., H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 188.
- Aphanapteryx hawkinsii*, n. sp. (subfossil), Chatham Is., *id. t. c.* p. 189.
- Diaphorapteryx*, n. g. for the preceding; *id.*, Bull. B. O. C., No. 4, p. xxi. [Genus cancelled, *id.*, Bull. B. O. C., No. 9, p. l.]
- Porphyrio mackintoshi*, n. sp. (fossil), Queensland, C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, p. 440, pl. xxiv, fig. 2a.
- Notornis parkeri*, n. sp. (fossil), New Zealand, H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 187.
- Apornis*: notes on the genus; A. HAMILTON, *t. c.* pp. 175-184.
- Gallinula coccineipes* [Zool. Rec. xxviii, *Aves*, p. 37], figured; J. D. DE LA TOUCHE, Ibis, 1892, pl. xii [= *Amaurornis akool*]. *G. peralata*, n. sp. (fossil), Queensland, C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 440 & 441, pl. xxiv, figs. 3a & 3b. *G. chloropus* × *Fulica atra*; H. KREYE, Orn. Jahrb. iii, p. 172.

*Porphyriornis*, n. g. Type, *P. comeri*, n. sp., Gough I. ; J. A. ALLEN, Bull. Am. Mus. iv, pp. 57 & 58.

*Tribonyx effluxus*, n. sp. (fossil), Queensland, C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 439 & 440.

*Fulica minor*, n. sp. (fossil), Pliocene of Oregon, R. W. SHUFELDT, J. Ac. Philad. ix, p. 412.

### Order PODICIPEDIDIFORMES.

SHUFELDT, R. W. Concerning the Taxonomy of the North American Pygopodes, based upon their osteology. J. Anat. Phys. xxvi, pp. 198-203.

*Podiceps nigricollis*, in Merionethshire ; G. H. CATON HAIGH, Zool. 1892, p. 311 : in Anglesea ; W. BANKS, t. c. p. 411 : in Norfolk ; T. BIDWELL, t. c. p. 358. *P. rubricollis*, in Devon ; E. A. S. ELLIOT, t. c. p. 331.

*Podiceps auritus*, supposed nesting in Ross-shire, = *P. fluviatilis* ; A. W. EVANS, Ann. Scott. Nat. Hist. i, pp. 171 & 172.

### Order COLYMBIFORMES.

Motions on land ; HAIGH, Zool. 1892, p. 226.

Taxonomy ; see SHUFELDT, R. W., *ut supra*.

*Urinator imber* : migration in Massachusetts ; G. H. MACKAY, Auk, ix, p. 292.

### Order HESPERORNITHIFORMES.

*Hesperornis regulis* : restoration ; H. N. HUTCHINSON, Extinct Monsters, p. 109, pl. ii.

### Order PROCELLARIIFORMES.

DALGLEISH, J. J. Notes on the Petrels of Madeira and adjoining Seas. P. Phys. Soc. Edinb. xi, pt. 1, pp. 27-30.

*Puffinus major*, in Tiree ; J. A. HARVIE-BROWN, Ann. Scott. N. H. i, p. 74. *P. major* and *P. cinereus*, in France ; L. BUREAU, Bull. Soc. Ouest France, ii, pp. 39 & 40, pl. iii, figs. 1 & 2.

*Cymochorea leucorrhœa*, off Scottish Coasts ; W. EVANS, Ann. Scott. N. Hist. i, pp. 74-76.

*Oceanitis oceanicus*, in Ireland ; R. L. PATTERSON, Ibis, 1892, pp. 180 & 181 : in Scotland ; H. SAUNDERS, t. c. p. 183 : in Jura ; H. EVANS, Ann. Scott. N. H. i, p. 18.

*Procellaria pelagica* used as a candle in the Orkneys and S. Kilda ; E. LOVETT, P. Croydon Club, pp. 331 & 332 : *id.*, J. Northampton. Soc. 1892, pp. 113 & 114.

## Order ALCIFORMES.

KEELER, C. A. Notes on the Auks breeding in the Farallone Islands.  
Zoe, iii, pp. 144-165, pls. xviii-xxi.

*Alca impennis* : an unrecorded egg ; F. A. LUCAS, Auk, ix, p. 198 : figured ;

H. GADEAU DE KERVILLE, Faun. Norm. iii, pl. i.

*Uria troile*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.

## Order LARIFORMES.

## Family STERCORARIIDÆ.

*Stercorarius catarrhactes*, in Shetland ; W. E. CLARKE, Ann. Scott. N.

H. i, pp. 87-92. *S. parasiticus* and *S. crepidatus* : notes on ;

H. SAUNDERS, Ibis, 1892, pp. 183-185.

*Lestris pomarinus*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.

## Family LARIDÆ.

## Subfamily LARINÆ.

*Larus robustus*, n. sp. (fossil), and *L. oregonus*, n. sp. (fossil), Equus  
Beds, Oregon, R. SHUFELDT, J. Ac. Philad. ix, p. 398. *L.*  
*argentatus smithsonianus*, Habits in New England ; G. H. MACKAY,  
Auk, ix, pp. 221-228. *L. leucopterus*, and *L. glaucus*, in Ireland ;  
R. WARREN, Irish Nat. i, pp. 129-134 & 154-156. *L. leucopterus*,  
near Aldeburgh ; F. MENTEITH OGILVIE, Zool. 1892, p. 114 : In  
West and North of Scotland ; DUKE OF ARGYLL, Ann. Scott. N.  
H. i, pp. 140-141. *L. eburneus*, in co. Dublin ; E. G. WADDILOVE,  
Zool. 1892, p. 228. *L. ridibundus*, figured ; LORD LILFORD, Col.  
Fig. Br. Birds, part xxi. *L. canus*, a monstrosity ; G. DE KERVILLE,  
J. de l'Anat. Phys. xxviii, pp. 564-566, pl. xviii.

*Rissa tridactyla*, its rudimentary hallux ; W. E. CLARKE, Ibis, 1892,  
pp. 442-447.

*Xema subinii*, near Bournemouth ; F. COBURN, Zool. 1892, p. 22 : in  
Cornwall ; T. H. CORNISH, t. c. p. 22 : in Norfolk ; H. W. FEILDEN,  
t. c. p. 423 : in Pembrokeshire ; C. JEFFREYS, t. c. p. 423 : in San  
Francisco Bay ; W. E. BRYANT, Zoe, iii, p. 165.

## Subfamily STERNINÆ.

*Anous stolidus*, nests photographed ; A. J. CAMPBELL, C.R. ii, Congr.  
Orn. Intern. ii, p. 157.

## Order ÆGIALORNITHIFORMES.

[INCERTÆ SEDIS. Cf. Zool. Rec. xxviii, *Aves*, p. 39.]

*Ægialornis gallicus*, Lydekker, = *Tachyornis* [*Cypselidæ*, q.v.] ; A.  
MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 66 & 67.

## Order CHARADRIIFORMES.

LEGGE, W. V. On the Geographical Distribution of the Australian *Limicolæ*. Pr. Austr. Ass. 1892, pp. [1-50].

## Suborder CHARADRII.

## Family CHARADRIIDÆ.

*Charadrius squatarola*, habits in Massachusetts; G. H. MACKAY, Auk, ix, pp. 143-152.

*Vanellus vulgaris*, notes on nesting; R. HOWSE, Nat. 1892, pp. 137-139.

*Ægialitis asiatica*, figured; LORD LILFORD, Col. Fig. Br. Birds, part xxi.

## Family SCOLOPACIDÆ.

*Scolopax rusticula*, in Dalmatia; H. HÄNISCH, Orn. Jahrb. iii, pp. 27-30 & 189-191: nesting in North Uist; J. C. ORDE, Ann. Scott. N. H. i, p. 73.

*Numenius borealis*, habits and migration in New England; G. H. MACKAY, Auk, ix, pp. 16-21: figured; LORD LILFORD, Col. Fig. Br. Birds, part xxi: in California; W. E. BRYANT, Zoe, iii, p. 165, [= *N. hudsonicus*; L. BELDING, t. c. p. 257]. *N. arquata*, in Worcestershire in July; F. COBURN, Zool. 1892, p. 23: on Long Island; W. DUTCHER, Auk, ix, p. 392. *N. hudsonicus*, in Massachusetts; G. H. MACKAY, Auk, ix, pp. 345-352. *N. cyanopus* and allies; W. LEGGE, P. R. Soc. Tasm. 1888, pp. 133-136.

*Pavoncella pugnax*, in North Carolina; H. H. BRIMLEY, Auk, ix, pp. 299 & 300: in Orkney; T. PEACE, Ann. Scott. N. H. i, p. 73: in the Outer Hebrides, *id.*, t. c. p. 139.

*Totanus fuscus*, in Ireland; E. WILLIAMS, Zool. 1892, p. 35. *T. incanus*, figured; S. B. WILSON & A. H. EVANS, Av. Haw. part iii.

*Eurynorhynchus pygmaeus*, Hainan; G. HARTLAUB, Abh. Ver. Brem. xii, p. 330.

*Tringa temminckii*, in Japan; L. STEJNEGER, P. U. S. Nat. Mus. xv, p. 371. *T. minutilla*, in Devonshire; H. A. EVANS, Zool. 1892, p. 141. *T. acuminata*, in Norfolk; T. SOUTHWELL, Zool. 1892, pp. 356-358: H. SEEBOHM, Bull. B. O. C. No. 3, p. ix.

*Ereunetes occidentalis*, in Connecticut; W. E. TREAT, Auk, ix, p. 389.

*Calidris arenaria*, figured; LORD LILFORD, Col. Fig. Br. Birds, part xxi: notes on its distribution; A. NEWTON, Add. to Ibis for July, 1892, p. 5; *id.* Nature, xlv, p. 222; *id.* Rec. Austral. Mus. ii, p. 22: in the Malay Archipelago; H. SEEBOHM, Ibis, 1892, pp. 469-470.

*Tringoides hypoleucus*, skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxii, fig. 2.

*Limosa lapponica*, figured; LORD LILFORD, Col. Fig. Br. Birds, part xxii.

*Himantopus leucocephalus*, in Norfolk Island, Lord Howe Island, and the New Hebrides; A. J. NORTH, Rec. Austral. Mus. ii, p. 38.

*Crymophilus fulicarius*, in Nantucket Island, Massachusetts; G. H. MACKAY, Auk, ix, pp. 294-298: in Princetown Harbour, Mass.; G. S. MILLER, t. c. pp. 288 & 289: in Leicestershire; A. MATTHEWS, Zool. 1892, p. 26: in Warwickshire; F. COBURN, t. c. p. 26: in 1892. [VOL. XXIX.]

Ireland ; R. PATTERSON, Zool. 1892, pp. 26, 32, & 33 : in Islay, R. S. SKIRVING, Ann. Scott. N. H. i, p. 72 : in Jura ; H. EVANS, *t. c.* p. 72 : in S.W. Scotland ; R. SERVICE, *t. c.* p. 73 : in Devon ; W. E. H. PIDSELEY, *t. c.* p. 28. *P. hyperboreus* : notes on nesting and migration ; S. VON CHERNEL, C.R. ii, Congr. Orn. Intern. ii, pp. 137-144, pl. 2 : in Ireland ; E. WILLIAMS, Zool. 1892, p. 28.

#### Suborder PARRÆ.

*Jacana spinosa*, in Jamaica ; T. D. A. COCKERELL, P. Z. S. 1892, p. 472.

#### Suborder ŒDICNEMI.

*Œdicnemus crepitans*, in Kent ; W. VERNER, Zool. 1892, p. 24.

#### Suborder OTIDES.

See NICOLLS, J. A., and EGLINGTON, W.

*Otis tarda*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi : in Orkney, T. PEACE, Ann. Scott. N. H. i, p. 138. *O. tetrax*, in Silesia ; E. URBAN, Orn. Jahrb. iii, p. 34 : in Moravia ; F. SCHALLER, *ibid.* : in Steiermark ; A. J. MOJSISOVICS, *ibid.* : in Northern Dalmatia ; H. HÄNISCH, *t. c.* pp. 112 & 113.

### Order GRUIFORMES.

*Geranopsis elatus*, n. sp. (fossil), A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 72 & 73.  
*Grus leucogeranus*, in the Hebrides [Zool. Rec. xxviii, *Aves*, p. 41], was an escaped specimen ; W. E. CLARKE, Ibis, 1892, p. 181.

### Order PELARGIFORMES.

#### Suborder ARDEÆ.

HÄNISCH, H. Ornithologische Mittheilungen aus dem unteren Narentathale. Reiher (*Ardeidæ*). Orn. Jahrb. iii, pp. 55-60.  
*Palæopelagus*, n. g. Type, *P. nobilis*, n. sp. (fossil), Queensland ; C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 441-443, pl. xxiv, figs. 4a, 4a<sup>1</sup>.  
*Ardea amissa*, n. sp. (fossil), Eocene of S. France ; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, p. 73. *A. paloccidentalis*, n. sp. (fossil), Pliocene of Oregon ; R. W. SHUFELDT, J. Acad. Philad. ix, p. 411.  
*A. garzetta*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.  
*Herodias egretta*, in Norfolk I. ; A. J. NORTH, Rec. Austral. Mus. ii, p. 37,  
*Botaurus neoxenus* : male described ; W. E. D. SCOTT, Auk, ix, pp. 141 & 142.

#### Suborder PLATALEÆ.

*Platalea leucorodia*, in Heligoland ; H. GÄTKE, Orn. Jahrb. iii, p. 201 : its breeding places in Holland ; F. E. BLAAUW, Ibis, 1892, p. 468.  
*P. subtenuis*, n. sp. (fossil), Queensland, C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 443 & 444, figs. 5a & 5b.

## Order TAPINOPIFORMES.

*Tapinopus*, n. g. Type, *T. ellioti*, n. sp. (fossil), Eocene of S. France ;  
A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 79 & 80.

## Order PHÆNICOPTERIFORMES.

*Phænicopterus copei*, n. sp. (fossil), Equus Beds, Oregon ; R. W. SHUFELDT, J. Ac. Philad. ix, pp. 410 & 411.

## Order ANSERIFORMES.

See NICOLLS, J. A., and EGLINGTON, W.

*Olor paloregonus* (fossil) : notes on ; R. W. SHUFELDT, J. Ac. Philad. ix, p. 409.

*Chemionis gracilis* and *C. minor*, n. spp. (fossil) ; H. O. FORBES, Tr. N. Z. Inst. xxiv, pp. 187 & 188.

*Bernicla ruficollis*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.  
*B. munroii*, n. sp., Kauai, Sandwich, Is., W. ROTHCHILD, Ann. & Mag. N. H. (6) x, p. 108. *B. leucopsis*, in Venezia, E. ARRIGONI DEGLI ODDI, Atti Soc. Ital. xxxiv, pp. 117-121. *B. propinqua*, n. sp. (fossil), Equus Beds, Oregon, SHUFELDT, J. Ac. Philad. ix, pp. 408 & 409.

*Anser anatoides*, n. sp. (fossil), Pliocene of France ; C. DÉPERET, C.R. cxiv, p. 690. *A. cinereus*, *A. segetum*, and *A. albifrons*, in Dalmatia ; G. KOLAMBATOVIC, Glasnik. Naravosl. Druž. vi, pp. 168-171 (1891).

*Biziura lautouri*, n. sp. (fossil), from New Zealand ; H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 188.

*Anseranas melanoleuca*, in Tasmania ; W. F. PETTERD, P. R. Soc. Tasm. 1888, pp. 91 & 92.

*Tadorna casarca* : on the recent occurrence in the British Is. ; F. M. OGILVIE, Zool. 1892, pp. 392-398 : in Ireland ; R. J. USSHER, t. c. pp. 334 & 335. *T. rutila*, in co. Donegal ; J. S. ELLIOTT, t. c. p. 311.

*Anas condoni*, n. sp. (fossil), Equus Beds, Oregon, R. W. SHUFELDT, J. Ac. Philad. ix, pp. 406 & 407. *A. laysanensis*, n. sp., Laysan I., W. ROTHCHILD, Bull. B. O. C., No. 4, p. xvii. *A. angustirostris* and *Fuligula marila*, in Bohemia ; — RIHA, Orn. Jahrb. iii, pp. 260 & 261. *A. boschas* × *A. americana* ; D. G. ELLIOT, Auk, ix, pp. 160-166.

*Spatula clypeata* nesting in Orkney ; W. HARVEY, Ann. Scott. N. H. i, p. 138 : in co. Westmeath, F. J. BATTERSBY, Zool. 1892, p. 311.

*S. variegata* in Tasmania ; A. J. NORTH, Rec. Austral. Mus. ii, p. 37.

*Harelda glacialis* on the Suffolk Coast in Summer ; F. M. OGILVIE, Zool. 1892, p. 109.

*Somateria mollissima*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii.

*Aythya marila nearctica*, n. sp. (fossil), Equus Beds, Oregon ; R. W. SHUFELDT, J. Ac. Philad. ix, p. 405.

*Ædemia* : notes on the American species ; G. TRUMBULL, Auk, ix, pp. 153-157. *Æ. nigra*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii : migration in spring ; G. H. MACKAY, Auk, ix, pp. 292-294 : nesting in Sussex ; C. FOWLER, Zool. 1892, p. 151. *Æ. fusca*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii.

*Erismatura australis* in Tasmania ; A. J. NORTH, Rec. Austral. Mus. ii, p. 37.

*Clangula hyemalis*, in New England ; G. H. MACKAY, Auk, ii, pp. 330-337.

*Mergus serrator*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.

## Order PELECANIFORMES.

### Suborder SULÆ.

*Sula cyanops* and *S. fiber*, nesting on Adèle I. ; J. WALKER, Ibis, 1892, pp. 257 & 258.

### Suborder PHALACROCORACES.

#### Family PHALACROCORACIDÆ.

*Phalacrocorax carbo* and *P. graculus*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii. *P. gutturalis*, n. sp., Victoria Nyanza, A. REICHENOW, J. f. O. 1892, pp. 133 & 134. *P. novæ zealandiæ*, n. var., *major* (fossil) ; H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 189. *P. sulcirostris*, in Norfolk I. ; A. J. NORTH, Rec. Austral. Mus. ii, p. 38.

#### Family PLOTIDÆ.

*Plotus melanogaster* : notes on anatomy and osteology ; F. E. BEDDARD, P. Z. S. 1892, pp. 291-296.

### Suborder PELECANI.

*Pelecanus proavus*, n. sp. (fossil), Queensland, C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 444 & 445, figs. 6a & 6b. *P. erythrorhynchus*, in Maine ; H. MERRILL, Auk, ix, p. 292.

### Suborder FREGATI.

*Tachypetes minor* nesting on Adèle I. ; J. WALKER, Ibis, 1892, pp. 258-260.

## Order CATHARTIDIFORMES.

BENDIRE, C. Life Histories of North American Birds, with special reference to their breeding habits and eggs. U. S. Nat. Mus., Special Bulletin No. 1, Washington, 1892, 4to.

Eggs of the following species are figured :—*Pseudogryphus californianus* (pl. iv, fig. 5) ; *Cathartes aura* (pl. iv, figs. 1 & 3) ; *Catharista atrata* (pl. iv, figs. 7 & 10).

## Order ACCIPITRIFORMES.

BENDIRE, C. Life Histories of North American Birds, with special reference to their breeding habits and eggs. U. S. Nat. Mus., Special Bulletin No. i, Washington, 1892, 4to.

Eggs of the following species are figured :—*Elanoides forficatus* (pl. v, figs. 1 & 2), *Elanus leucurus* (pl. v, figs. 3 & 4) ; *Ictinia mississippiensis* (pl. 5, fig. 5) ; *Rosthramus sociabilis* (pl. v, figs. 6 & 7) ; *Circus hudsonius* (pl. v, figs. 8-10) ; *Accipiter velox* (pl. v, figs. 11-17), *A. cooperi* (pl. v, figs. 18-20), *A. atricapillus* (pl. vi, fig. 1), *A. atricapillus striatulus* (pl. vi, fig. 2) ; *Parabuteo unicinctus harrisi* (pl. vi, figs. 3 & 3), *Buteo borealis* (pl. vi, figs. 5 & 6), *B. borealis calurus* (pl. vi, figs. 7 & 8), *B. lineatus* (pl. vii, figs. 1-5), *B. lineatus elegans* (pl. vi, fig. 9), *B. abbreviatus* (pl. vii, fig. 6), *B. albicaudatus* (pl. vii, figs. 8 & 9), *B. swainsoni* (pl. viii, figs. 1-6), *B. latissimus* (pl. vii, figs. 10-13), *B. brachyurus* (pl. viii, fig. 7) ; *Urubitinga anthracina* (pl. viii, figs. 8 & 9), *Asturina plagiata* (pl. vii, fig. 7), *Archibuteo lagopus sanctijohannis* (pl. viii, figs. 10-12), *A. ferrugineus* (pl. ix, figs. 1, 2, & 4) ; *Aquila chrysaetos* (pl. ix, figs. 3 & 5) ; *Haliaetus leucocephalus* (pl. ix, fig. 7) ; *Falco rusticolus gyrfalco* (pl. ix, figs. 6, 8, & 9), *F. rusticolus obsoletus* (pl. x, fig. 1), *F. mexicanus* (pl. x, figs. 2 & 3), *F. peregrinus anatum* (pl. x, figs. 5-7), *F. columbarius* (pl. x, figs. 4 & 8), *F. fusco-cærulescens* (pl. x, figs. 9 & 10), *F. sparverius* (pl. x, figs. 11-16) ; *Polyborus cheriway* (pl. xi, figs. 1-4) ; *Pandion haliaëtus carolinensis* (pls. x, fig. 17, & xi, figs. 5-9).

CZATÓ, J. VON. Die Verbreitung und Lebensweise der Tagraubvögel in Siebenbürgen. C.R. ii, Congr. Orn. Intern. ii, pp. 118-128.

LILFORD, LORD. Notes on Birds in the Lilford Aviaries. J. Northampton Soc. v, pp. 258-269.

[*Haliaetus albicilla*, *Aquila mogilnik*, *A. adalberti*, *A. rapax*, *A. nepalensis*, *A. pennata*, *Pseudaetus bonelli*, *Circaetus gallicus*, *Vultur monachus*, *Gypætus barbatus*, *Neophron perenopterus*.]

MEARNS, E. A. A Study of the Sparrow Hawks (Subgenus *Tunnunculus*) of America, with especial reference to the Continental species (*Falco sparverius*, Linn.). Auk, ix, pp. 252-270.

[See *Falconidæ*, p. 39.]

QUELCH, J. J. Our [British Guiana] Birds of Prey. Journ. R. Agr. & Comm. Soc. Brit. Guian. (2) vi, pp. 117-162.

## Family VULTURIDÆ.

*Neophron pileatus* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. cli.

## Family FALCONIDÆ.

## Subfamily POLYBORINÆ.

*Polyborus cheriway* : egg and chick ; A. DUGÈS, Nat. Mex. (2) ii, pp. 173 & 174, pl. ix.

*Ibycter chimango* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. cliii.

## Subfamily ACCIPITRINÆ

*Circus cyaneus*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxi.

*C. hamiltoni* and *C. teautensis*, n. spp. (subfossil), New Zealand ;

H. O. FORBES, Tr. N. Z. Inst. xxiv, p. 186.

*Astur brevipes*, notes on ; N. v. SSOMOW, Orn. Jahrb. iii, pp. 179-182.

*Melierax polyzonus* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clix.

## Subfamily BUTEONINÆ.

*Busarellus nigricollis* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. cliv.

*Buteo borealis calurus* in Cuba ; F. M. CHAPMAN, Bull. Am. Mus. iv, p. 294. *B. albicaudatus colonus*, n. subsp., Curaçao ; H. VON BERLEPSCH, J. f. O. 1892, pp. 89-91.

## Subfamily AQUILINÆ.

*Necrastur*, n. g. Type *N. alacer* (fossil), Queensland ; C. W. DE VIS, P. Linn. Soc. N.S.W. (2) vi, pp. 437-439, pl. xxiv, figs. 1a, 1b.

*Aquila hypogaea*, n. sp. (fossil) ; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 60 & 61. *A. pliogryps*, n. sp. (fossil), and *A. sodalis*, n. sp. (fossil), Equus Beds, Oregon, R. W. SHUFELDT, J. Ac. Philad. ix, pp. 416-418. *A. rapax*, in Astrachan ; A. B. MEYER, Abh. Ges. Isis, 1892, pp. 67-71 : notes on *A. bocki*, *id. t. c. A. naevia*, in Essex ; MILLER CHRISTY, Zool. 1892, p. 76.

*Spizaetus coronatus*, skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clvi.

*Nisaetus fasciatus*, skeleton figured, *id. t. c.* Taf. clv.

*Spilornis rufipectus*, skeleton figured, *id. t. c.* Taf. clvii.

*Circæus gallicus*, in Bohemia, F. v. FISKAL, Orn. Jahrb. iii, pp. 173 & 174 : in the Forest of Andaine (Orne) ; Abbé LETACQ, Bull. Soc. L. Norm. vi, pp. 180-183.

*Haliaetus albicilla* : notes on ; V. RITTER VON TSCHUSI ZU SCHMIDHOFFEN, Orn. Jahrb. iii, pp. 74-76 : figured, E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. part xlix.

*Gypohierax angolensis*, skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clii.

*Milvus migrans*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. part xlvii.

## Family FALCONIDÆ.

- Pernis apivorus*, in co. Wexford ; E. WILLIAMS, Zool. 1892, p. 428.
- Baza lophotes* : notes on its nest and eggs ; T. A. HAUXWELL, J. Bomb. N. H. Soc. viii, pp. 403 & 404.
- Falco peregrinus*, from Pappan I., N. W. Borneo, R. B. SHARPE, Bull. B. O. C. ii, p. iv. *F. peregrinus anatum*, skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clviii. *F. barbarus* and *F. punicus*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital., parts. xlvii & xlviii. *F. rusticolus obsoletus*, in Rhode I. ; A. O'D. TAYLOR, Auk, ix, pp. 300 & 301.
- Gennaia saker* and *G. feldeggii*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital., part xlviii.
- Hierofalco candicans*, in Achill ; R. M. BARRINGTON, Zool. 1892, p. 77.
- Falco cenchris*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii.
- Falco tinnunculus* × *F. æsalon* ; GEORGE BOLAM, Naturalist, 1892, pp. 369 & 370. *F. sparveriioides* : notes on ; F. M. CHAPMAN, Bull. Am. Mus. iv, pp. 294-296. *F. sparverius deserticolus*, n. subsp., Arizona ; E. A. MEARNs, Auk, ix, p. 263. *F. sparverius peninsularis*, n. subsp., Lower California, *id. t. c.* p. 267. *F. sparverius australis*, n. subsp., S. America, *id. t. c.* p. 269. *F. sparverius æquatorialis*, n. subsp., Guayaquil, Ecuador, *id. t. c.* p. 269. *F. sparverius brevipennis*, n. subsp., Curaçao ; H. VON BERLEPSCH, J. f. O. 1892, pp. 91-95.

## Suborder PANDIONES.

- Pandion haliaetus*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital., part xlvii : formerly nesting in the Lake District of England ; A. G. MORE, Zool. 1892, pp. 1-3 : breeding on Plum I., N. Y. ; C. S. ALLEN, Auk, ix, pp. 313-321, pls. iv & v.

## Order STRIGES.

BENDIRE, C. Life Histories of North American Birds, with special reference to thier breeding habits and eggs. Washington : 1892, 4to, viii & 414 pp., pls. i-xii.

The eggs of the following species are figured:—*Strix pratincta* (pl. xii, fig. 1) ; *Asio wilsonianus* (pl. xii, fig. 2), *A. accipitrinus* (pl. xii, fig. 3) ; *Syrnium nebulosum* (pl. xii, fig. 4) ; *Scotiaptex cinerea* (pl. xii, fig. 5) ; *Nyctala tengmalmi richardsoni* (pl. xii, fig. 6), *N. acadica* (pl. xii, fig. 7) ; *Megascops asio* (pl. xii, fig. 8), *M. asio maxwellie* (pl. xii, fig. 10), *M. asio trichopsis* (pl. xii, fig. 11), *M. asio macfarlanei* (pl. xii, fig. 9), *M. flammeolus* (pl. xii, fig. 15) ; *Bubo virginianus* (pl. xii, fig. 12) ; *Nyctea nyctea* (pl. xii, fig. 19) ; *Surnia ulula caparoch* (pl. xii, fig. 18) ; *Speotyto cunicularia hypogæa* (pl. xii, fig. 14), *S. cunicularia floridana* (pl. xii, fig. 16) ; *Glaucidium phalanoides* (pl. xii, fig. 17) ; *Micropallas whitneyi* (pl. xii, fig. 13).

- Bubo maximus*, figured; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital, part xlvii. *B. incertus*, n. sp. (fossil), Eocene of S. France; A. MILNE-EDWARDS, C. R. ii, Congr. Orn. Intern. ii, pp. 63 & 64.
- Necrobyas harpax*, n. sp. (fossil), and *N. rossignoli*, n. sp. (fossil), Eocene of France, *id. t. c.* pp. 61-63.
- Megascops flammeolus idahoensis*, figured: C. H. MERRIAM, Auk, ix, pp. 169-171, pl. ii.
- Scops menadensis*, skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxi, fig. 2. *S. mantananensis*, n. sp., Mantanani I., N. W. Borneo; R. B. SHARPE, Bull. B. O. C., No. 2, p. iv. *S. brookii*, n. sp., Mt. Dulit, Borneo, *id. ibid.*
- Nyctea ulula*, in Austrian Silesia; E. URBAN, Orn. Jahrb. iii, p. 122.
- Asio accipitrinus*, increase of nests in vole-stricken districts of Scotland; P. ADAIR, Ann. Scott. N. H. i, pp. 219-231.
- Otus (potius Asio) henrici*, n. sp. (fossil), Eocene of S. France, A. MILNE-EDWARDS, C. R. ii, Congr. Orn. Intern. ii, p. 63.
- Carine noctua*, in Oxfordshire; O. V. APLIN, Zool. 1892, p. 332.
- Athene noctua plumipes*, skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clx, fig. 2.
- Ninox connivens*, egg figured; A. J. NORTH, Rec. Austral. Mus. ii, pl. ii, fig. 1.
- Speotyto cunicularia bahamensis*, = *S. cunicularia floridanus*; C. B. CORY, Cat. W. Ind. Birds, p. 140. *S. cunicularia floridana*, its breeding habits; S. N. RHOADS, Auk, lx, pp. 1-8.
- Syrnium occidentale*: notes on; F. STEPHENS, Auk, ix, pp. 392 & 393. *S. aluco*, figured; A. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital., part xlvii.
- Strix flammea bargei*, n. subsp., Curaçao I.; E. HARTERT, Bull. B. O. C., No. 3, p. xiii.

## Order CORACIIFORMES.

### Suborder STEATORNITHES.

- HARTERT, E. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ, Fam. *Steatornithidæ*. [Vol. xvi of The Catalogue of Birds.] London: 1892, 8vo, pp. 653 & 654.

### Suborder PODARGI.

- HARTERT, E., *ut supra*: Fam. *Podargidæ*, pp. 629-636 & 652, pl. xiv.
- Podargus strigoides*, remarks on; W. SAVILLE KENT, P. Z. S. 1892, p. 477.
- Batrachostomus harterti*, n. sp., Mt. Dulit, N. W. Borneo; R. B. SHARPE, Ibis, 1892, p. 323: figured, E. HARTERT, Cat. Birds, xvi, pl. xiv. *B. poliophus*, n. sp., W. Sumatra; E. HARTERT, Notes Leyd. Mus. xiv, p. 63. *B. mixtus*, n. sp., Mt. Dulit, N. W. Borneo; R. B. SHARPE, Bull. B. O. C., No. 2, p. iv.
- Ægotheles salvadorii*, n. sp., S. E. New Guinea; E. HARTERT, Cat. Birds, xvi, p. 649.

## Suborder CORACIÆ.

## Family CORACIIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Coraciidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 4-40, pls. ii & iii.

*Geranopterus*, n. g. Type, *G. elatus*, n. sp. (fossil), Eocene of S. France; A. MILNE-EDWARDS, C.R. ii, Orn. Congr. Intern. ii, p. 66.

*Coracias olivaceiceps*, n. sp. [nom. emend. pro *C. mosambicus*, Dresser]; R. B. SHARPE, t. c. p. 25. *C. garrula*, in Ireland; R. L. PATTERSON, Ibis, 1892, p. 181: in Caithness; L. DUNBAR, Ann. Scott. N. H. i, p. 136.

*Eurystomus orientalis* (pl. ii, fig. 1), *E. calonyx* (pl. ii, fig. 2), *E. solomonensis* [Zool. Rec. xxvii, *Aves*, p. 38] (pl. iii, fig. 1), *E. azureus* (pl. iii, fig. 2), figured; R. B. SHARPE, *ut suprâ*. *E. afer*, n. var. *rufobuccalis*, Uganda; A. REICHENOW, J. f. O. 1892, p. 27.

## Suborder LEPTOSOMATI.

## Family LEPTOSOMATIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Leptosomatidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 1-3.

## Suborder HALCYONES.

## Family ALCEDINIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Alcedinidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 93-312.

## Subfamily ALCEDININÆ.

*Ceryle septentrionalis*, n. subsp., nom. emend. pro *C. cabanisi* (auct., nec Tschudi), S. United States to Panama; *id.* t. c. pp. 134-136. *C. æquatorialis*, n. sp., Ecuador, *id.* t. c. p. 140, pl. iv, fig. 1. *C. stictoptera*, figured; *id.* t. c. pl. iv, fig. 2.

*Alcedo floresiana*, n. subsp., Flores; *id.* t. c. p. 151. *A. guentheri*, n. sp., W. Africa, *id.* t. c. pl. iv, fig. 2. Distinct from *A. quadribrachys*, (pl. iv, fig. 1), *id.* t. c. pp. 156 & 157. *A. ispida*: nesting habits; R. SCOBIE, P. N. H. Soc. Glasg. (n.s.) iii, p. 255.

## Subfamily DACELOININÆ.

*Ceyx euerythra*, n. sp., Malaisia; R. B. SHARPE, Cat. B. Brit. Mus. xvii, p. 179. *C. samarensis* [Zool. Rec. xxvii, *Aves*, p. 38] = *C. melanura*; *id.* t. c. p. 180. *C. sulaensis* [Zool. Rec. xxvii, *Aves*, p. 38] = *C.*

*malamaui* [Zool. Rec. xxvii, *Aves*, p. 38], *id. t. c.* p. 184. *C. margarethæ* [Zool. Rec. xxvii, *Aves*, p. 38] = *C. bournsii* [Zool. Rec. xxvii, *Aves*, p. 38]; *id. t. c.* p. 185. *C. steerii*, n. sp., Mindoro, *id. t. c.* p. 187.

*Halcyon torquatus* (pl. vi, fig. 1), *H. forbesi*, n. sp., Sierra Leone (pl. vi, fig. 2), *H. malimbicus* (pl. vi, fig. 3) : heads figured; R. B. SHARPE, *t. c.* pp. 246 & 247, pl. vi. *H. admiralitatis*, n. sp., Admiralty Is., *id. t. c.* p. 251. *H. rufigularis*, n. subsp., hab. ignot., *id. t. c.* p. 260. *H. mediocris*, n. subsp., Ponapé, *id. ibid.* *H. tutuilaæ*, n. sp., Tutuila, *id. t. c.* p. 266. *H. tannensis*, n. sp., Tanna I., *id. ibid.* *H. chloris* : head figured; *id. t. c.* pl. vii, fig. 3. *H. armstrongi*, n. subsp., Burmah, *id. t. c.* p. 277, pl. vii, fig. i. *H. vidali*, n. subsp., S. Konkani, *id. t. c.* p. 278. *H. solomonis*, head figured; *id. t. c.* pl. vii, fig. 2. *H. suvensis*, n. sp., Suva I., *id. t. c.* p. 281. *H. humii*, n. sp., Malacca, *id. t. c.* p. 281, pl. viii. *H. meyeri*, n. subsp., Togian Is., *id. t. c.* p. 282. *H. davisoni*, n. subsp., Andamans, *id. t. c.* p. 282. *H. (Cyanalcyon) quadricolor*, figured; E. OUSTALET, N. Arch. Mus. (2) (3) iv, pl. xiv.

*Todirhamphus youngi*, n. sp., Morea I., p. 289; R. B. SHARPE, *ut suprâ*, p. 289.

### Suborder BUCEROTES.

#### Family BUCEROTIDÆ.

OGILVIE-GRANT, W. R. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Bucerotidæ*. [Vol. xvii of The Catalogue of Birds.] 1891, pp. 347-428, pls. xiii & xiv.

*Buceros exaratus* : skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxix.

*Gymnolæmus*, n. g. Type, *G. marchii*, W. R. OGILVIE-GRANT, *t. c.* p. 370.

*Ptilolæmus*, n. g. Type, *P. tickelli*; *id. t. c.* p. 392.

*Lophoceros damarensis*, figured; *id. t. c.* p. 411, pl. xiv. *L. flavirostris*, *id. t. c.* p. 412, *L. leucomelas*, p. 414, and *L. elegans*, p. 415 : tails figured; *id. t. c.* p. 413. *L. jacksoni* [Zool. Rec. xxviii, *Aves*, p. 49], figured; *id. t. c.* p. 416.

*Ortholophus*, n. g. Type, *O. albocristatus*; *id. t. c.* p. 424.

*Tockus gingalensis* : nest and eggs; F. LEWIS, J. A. S. (Ceylon) xii, pp. 63-65.

### Suborder UPUPÆ.

SALVIN, O. Catalogue of the *Picariæ* in the Collection of the British Museum. Upupæ. [Vol. xvi of The Catalogue of Birds.] 1892, pp. 1-26, pls. i-iii.

#### Family UPUPIDÆ.

5 species recognized; O. SALVIN, *ut suprâ*. *U. somalensis*, n. sp., Somali-land, *id. t. c.* p. 13, pl. i.

## Family IRRISORIDÆ.

3 genera recognized : *Irrisor*, *Scoptelus*, and *Rhinopomastus* ; O. SALVIN, *t. c.* pp. 16-26.

*Irrisor bollii* (pl. ii), and *I. jacksoni* [Zool. Rec. xxvii, *Aves*, p. 39], pl. iii, fig. 1, figured ; *id. t. c.*

*Scoptelus castaneiceps*, figured ; *id. t. c.* pl. iii, fig. 2. *S. anchietæ*, n. sp., Benguela, J. V. BARBOZA DU BOCAGE, J. Sci. Lisb. (2) No. viii, p. 254.

## Suborder MEROPES.

## Family MEROPIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Meropidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 41-92, pl. i.

*Dicrocercus furcatus* (pl. i, fig. 2), distinct from *D. hirundineus* (pl. i, fig. 1): both species (heads) figured ; *id. t. c.* pp. 42-44.

*Melittophagus meridionalis*, n. sp. (pl. i, fig. 4), distinct from *M. pusillus* (pl. i, fig. 5), and *M. cyanostictus* (pl. i, fig. 3) : heads of all 3 species figured ; *id. t. c.* pp. 45-48. *M. oreobates*, n. sp., Mt. Elgon, E. C. Africa ; *id. Ibis*, 1892, pp. 320 & 321.

*Merops apiaster*, in Moravia ; J. TALSKÝ, Orn. Jahrb. iii, p. 195 : in co. Wicklow ; E. WILLIAMS, Zool. 1892, p. 428. *M. philippinus*, skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxii, fig. 1.

## Suborder MOMOTI.

## Family MOMOTIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Momotidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 313-332.

*Momotus parensis*, n. sp., Para ; *id. t. c.* p. 320. *M. bartletti*, n. sp., Colombia to Upper Amazonia ; *id. t. c.* pp. 320 & 321, pl. ix. *M. subrufescens*, figured ; *id. t. c.* pl. x, fig. i. *M. microstephanus* figured ; *id. t. c.* pl. x, fig. 2. *M. æquatorialis*, figured ; *id. t. c.* pl. xi. *M. venezuelæ*, n. sp., Venezuela ; *id. t. c.* p. 321.

*Aspatha*, n. g. Type, *A. gularis* (Lafresn.) ; *id. t. c.* p. 331.

## Suborder TODI.

## Family TODIDÆ.

SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ and Halcyones. *Todidæ*. [Vol. xvii of The Catalogue of Birds.] 1892, pp. 333-337.

## Suborder CAPRIMULGI.

- HARTERT, E. Notes on the *Caprimulgidae*. Ibis, 1892, pp. 274-288, pl. vi. *Caprimulgus europæus* and its allies; *id. t. c.* pp. 277-279. *C. tristigma*, Rüpp., = *C. lentiginosus*, Smith; *id. t. c.* p. 279. *C. eximius*, figured; *id. t. c.* pp. 279 & 280, pl. vi. *C. asiaticus*: notes on; *id. t. c.* p. 280. *C. arundinaceus*, Jacq. & Pucher, and *C. faberi*, Meyer, = *C. affinis*, *id. t. c.* pp. 280 & 281. *C. salvadorii*, Sharpe, = *C. macrurus*, of which *C. albonotatus* is only a race; *id. t. c.* pp. 281-283. *C. kelaarti* is a race of *C. jotaka*; *id. t. c.* pp. 283-285. *C. melanopogon*, Salvad., = *C. jotaka*; *id. t. c.* p. 285. *C. concretus*: notes on; *id. t. c.* p. 285.
- Antrostomus*, = *Caprimulgus*; *id. t. c.* p. 286. *A. vociferus*, arizonæ, *vocifer*, = *C. macromystax*, Wagl.; *id. t. c.* p. 286. *C. salvini*, n. sp. (= *C. macromystax*, auct., nec Wagl.) *id. t. c.* p. 287.
- Scotornis nigricans*, = *S. climacurus*; *id. t. c.* pp. 287 & 288.
- HARTERT, E. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ. Family *Caprimulgidae*. [Vol. xvi of The Catalogue of Birds.] 8vo, pp. 519-652, pls. xi-xiii.
- Caprimulgus griseatus*, figured; *id. t. c.* pl. xi. *C. whiteleyi*, n. sp., Roraima; *id. t. c.* pp. 573 & 574, pl. xii. *C. clarus*, n. sp., Uganda; A. REICHENOW, Ber. Allg. Deutschl. Orn. Ges., Jan. 1892, p. 1; *id. J. f. O.* p. 29. *C. europæus*, figured; LORD LILFORD, Col. Fig. Br. Birds, part xxii; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. pt. I.
- C. ruficollis* and *C. asiaticus*, figured; *id. t. c.* pt. I.
- Lyncornis mindanensis*, figured; E. HARTERT, *t. c.* pl. xiii.

## Suborder CYPSELI.

- HARTERT, E. Catalogue of the *Picariæ* in the Collection of the British Museum. Coraciæ. Family *Cypselidæ*. [Vol. xvi of The Catalogue of Birds.] London: 1892, pp. 434-518, pl. x.
- Micropus africanus*, distinct from *M. apus*; *id. t. c.* pp. 440 & 441.
- Aeronautes*, n. g. Type, *A. melanoleucus*; *id. t. c.* pp. 459 & 460.
- Claudia*, n. g. Type, *C. squamata*; *id. t. c.* pp. 469 & 470.
- Chatura guianensis*, n. subsp., Guiana; *id. t. c.* p. 486. *C. ussheri*, figured; *id. t. c.* pl. x.
- Collocalia merguiensis*, n. subsp., Tenasserim; *id. t. c.* p. 506.
- [See RIDGWAY, R., Am. Nat. xxvi, pp. 1040 & 1041; SHUFELDT, R. W., *t. c.* pp. 869 & 870.]
- Cypselus affinis*, figured; E. H. GIGLIOLI & MANZELLA, Iconogr. Avif. Ital. pt. xlviii.
- Collocalia* in the Andaman Is.; [Anon.] Ibis, 1892, pp. 578 & 579.
- Tachyornis*, n. g. Type, *T. hirundo*, n. sp. (fossil), Eocene of S. France; A. MILNE-EDWARDS, C.R. ii, Congr. Orn. Intern. ii, pp. 66 & 67.
- [*Ægialornis* (Zool. Rec. xxviii, *Aves*, p. 39) is identical; *id. t. c.*]

## Suborder TROCHILI.

Food: BOLLES, F., Science, xx, p. 318, and GIBBS, M., *t. c.* p. 329.

BOUCARD, A. Genera of Humming Birds, pp. 1-56, 8vo [published in the 'Humming Bird,' ii, Jan.-July, 1892].

*Lophornis hauxwelli*, n. sp., Nauta. *id. t. c.* p. 37.

—. A complete list up to date of the Humming Birds found in Columbia, with descriptions of several supposed new species. *T. c.* pp. 73-87.

The following species are supposed to be new:—*Heliodoxa berlepschi*, n. sp., *Heliotrypha simoni*, n. sp., *Heliangelus rothschildi*, n. sp., *Eriocnemis albigularis*, n. sp., *Chlorostilbon speciosa*, n. sp., *Saucerottia nunesi*, n. sp., *Uranomitra colombiana*, n. sp., *Phaethornis panamensis*, n. sp., *Homophania lawrencii*, n. sp.

RIDGWAY, R. The Humming Birds. Rep. U. S. Nat. Mus. 1890, pp. 253-383, pl. xlv, and 47 cuts in the text. A review of the family of *Trochilidae*, with special reference to the species of the United States. *T. c.* pp. 255-292.

Notes on the anatomy, by F. A. LUCAS.

[See also Am. Nat. xxvi, pp. 1040 & 1041.]

SALVIN, O., & GODMAN, F. D. Biologia Centrali-americana., *Aves*, Vol. ii, pp. 249-366.

The following species are figured:—*Oreopyra calolema* (pl. liv, figs. 1 & 2); *Delattiria hemileuca* (pl. liv, figs. 3 & 4), *D. margarethæ* and *D. sybilleæ* (pl. livA); *Hemistephania veraguensis* (pl. lv, fig. 1); *Hypuroptila* (s. n. *Chalybura*) *melanorrhœa* (pl. lv, figs. 2 & 3); *Callipharus* (s. n. *Eupherusa*) *nigriventris* (pl. lvii, figs. 3 & 4); *Selasphorus torridus* and *S. ardens* (pl. lvi); *Lophornis adorabilis* (pl. lvii, figs. 1 & 2).

SALVIN, O. Catalogue of the *Picariæ* in the Collection of the British Museum. [Vol. xvi of The Catalogue of Birds.] *Trochili*, pp. 27-433, pls. iv-ix.

*Panychlora micans*, n. sp., hab. ?, *id. t. c.* p. 71, pl. iv, fig. 1.

*Chlorostilbon peruanus*, figured; *id. t. c.* pl. iv, fig. 2.

*Neolesbia*, n. g. Type, *N. nehrkornæ*; *id. t. c.* p. 145.

*Heliangelus laticlavus*, Ecuador, *id. t. c.* p. 160, and *H. violicollis*, n. spp., p. 162, pl. v, figs. 1 & 2.

*Heliotrypha barrali* and *H. speciosa*, n. sp., Colombia?, figured, *id. t. c.* pl. vi, figs. 1 & 2.

*Iolæma luminosa*, figured; *id. t. c.* pl. viii, fig. 1.

*Phælœma cervinigularis*, n. sp., Ecuador?, *id. t. c.* p. 325, pl. viii, fig. 2.

*Eriocnemis ventralis*, n. sp., Colombia, *id. t. c.* p. 364, pl. ix, fig. 2. *E. dyselius* figured; *id. t. c.* pl. ix, fig. 1.

*Agyrtia cœruleiceps*, figured; *id. t. c.* pl. vii, fig. 1.

*Amazilia sumichrasti*, n. sp., S. Mexico, *id. t. c.* p. 213, pl. vii, fig. 2.

- Polycrata decora*, n. sp., Chiriqui, *id. t. c.* p. 238.  
*Oreopyra pectoralis*, n. sp., Costa Rica, *id. t. c.* p. 308.  
 See SHUFELDT, R. W., *Am. Nat.* xxvi, pp. 869 & 870; *Nature*, xlv, p. 465.  
*Cyanolesbia emmæ*, n. sp., Colombia, H. VON BERLEPSCH, *Ber. Allg. Deutsch. Orn. Ges.*, Dec. 1892, p. 10. *C. caudata*, n. sp., Venezuela, *id. t. c.* p. 12.  
*Delattria sybillæ*, n. sp., Nicaragua, O. SALVIN & F. D. GODMAN, *Ibis*, 1892, p. 327.  
*Cyanomyia guerrensis*, n. sp., Guerrero, *id. t. c.* p. 290; *id.*, *Biol. Centr.-Am. Aves*, ii.  
*Phaethornis rupurumii*, n. sp., British Guiana, A. BOUCARD, *Humming Bird*, ii, p. 1.

## Suborder COLII.

## Family COLIIDÆ.

- SHARPE, R. B. Catalogue of the *Picariæ* in the Collection of the British Museum. *Coliidae*. [Vol. xvii of *The Catalogue of Birds*.] 1891, pp. 338-346, p. xii.  
*C. leucotis* (fig. 1), and *C. affinis* (fig. 2), figured; *id. t. c.* pl. xii.  
*Colius nigriscapalis*, n. sp., Cameroons, A. REICHENOW, *Ber. Allg. Deutsch. Ges.*, Feb. 1892, p. 3; *id. J. f. O.* 1892, p. 180.

## Order TROGONES.

## Family TROGONIDÆ.

- OGILVIE-GRANT, W. R. Catalogue of the *Picariæ* in the Collection of the British Museum. *Coraciæ* and *Halcyones*. *Trogonidae*. [Vol. xvii of *The Catalogue of Birds*.] 1891, pp. 429-497, pls. xiii-xvii.  
*Archæotrogon*, n. g. Type, *A. venustus*, n. sp. (fossil), Eocene of S. France; A. MILNE-EDWARDS, *C.R.* ii, *Congr. Orn. Intern.* ii, pp. 64-66.  
*Trogon bolivianus*, n. sp., Amazonia and Ecuador, W. R. OGILVIE GRANT, *t. c.* p. 473, pl. xv.  
*Hapaloderma vittatum*, figured; *id. t. c.* pl. xvi.  
*Harpactes vidua*, n. sp., Mt. Dulit, Borneo, *id. t. c.* p. 501. *H. dulitensis*, n. sp., Mt. Dulit, *id. t. c.* p. 502, pl. xvii.

## Order COCCYGES.

## Family CUCULIDÆ.

- Dynamopterus*, n. g. Type, *D. velox*, n. sp. (fossil); A. MILNE-EDWARDS, *C.R.* ii, *Congr. Orn. Intern.* ii, p. 64.  
*Cuculus canorus*: two eggs in a nest; V. CAPEK, *Orn. Jahrb.* iii, pp. 248-

254. *C. canorus* and *Hirundo rustica* reared in the same nest; C. WOLLEY-DOD, Ibis, 1892, pp. 524-530. *C. aurivillii*, n. sp., Cameroons, Y. SJÖSTEDT, J. f. O. 1892, p. 313.
- Cacomantis virens*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxiii, fig. 2.
- Coccyzus americanus occidentalis*, in Washington; R. H. LAWRENCE, Auk, ix, pp. 393 & 394.
- Centropus phasianus*: egg described and figured; A. J. NORTH, Rec. Austral. Mus. ii, p. 17, pl. ii, fig. 4.
- Pyrrhocentor celebensis*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxii.
- Guira guira*: skeleton figured; *id. t. c.* Taf. clxxi, fig. 2.

## Family MUSOPHAGIDÆ.

- CHURCH, A. H. Researches on Turacin, an animal pigment containing copper. Phil. Trans. clxxxiii, pp. 511-530.

## Order PSITTACIFORMES.

- A. L. H[ERRANO]. Sinopsis de los Psitacidos mexicanos. Nat. Mex. (2) ii, pp. 213-218.

## Family NESTORIDÆ.

- Nestor norfolcensis*: notes on a specimen; H. B. TRISTRAM, Ibis, 1892, pp. 557 & 558.

## Family CACATUIDÆ.

- Calyptorhynchus funereus* and *C. solandri*: eggs described and figured; A. J. NORTH, Rec. Austral. Mus. ii, p. 18, pl. ii, figs. 2 & 3.

## Family PSITTACIDÆ.

## Subfamily CONURINÆ.

- Conurus carolinensis*: its range and habits; A. W. BUTLER, Auk, ix, pp. 49-56: in Missouri; C. H. MERRIAM, *t. c.* p. 301. *C. rubritorques*, Sel., distinct from *C. holochlorus*; T. SALVADORI, Bull. B. O. C., No. 3, p. xi. *C. arubensis*, n. sp., Aruba I., E. HARTERT, *op. cit.* No. 4, p. xvi. *C. gundlachi*, from Mona = *C. chloropterus* of San Domingo; C. CORY, Auk, ix, pp. 228 & 229.

## Subfamily PRONINÆ.

- Chrysotis hecki* = *C. lilacina* (Less.); T. SALVADORI, Ibis, 1892, pp. 467 & 468. *C. rothschildi*, n. sp., Bonaire I., E. HARTERT, Bull. B. O. C., No. 3, p. xiii.

## Subfamily PALÆORNITHINÆ.

*Geoffroyius tjindane*, n. sp., Sumba I., A. B. MEYER, Notes Leyd. Mus. xiv, p. 267.

*Polytelis alexandrae*: egg described and figured; A. J. NORTH, Rec. Austral. Mus. ii, p. 19, pl. 2, fig. 5.

*Loriculus stigmatus*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxx, fig. 1.

## Subfamily PLATYCERCINÆ.

*Platycercus erythrotis*, from Antipodes I.; H. O. FORBES, Tr. N. Z. Inst. xxiv, pp. 190-192.

*Neophema elegans*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxx, fig. 2.

## Order SCANSORES.

## Suborder CAPITONES.

*Pogonorhynchus rubrifacies*, n. sp., Kimoani, Equat. Africa; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Jan. 1892, p. 1: *id.* J. f. O. 1892, p. 25.

*Mesobucco eximius*, n. sp., Mt. Dulit, N. W. Borneo, R. B. SHARPE, Ibis, 1892, p. 324: figured, *id.* t. c. pl. xi.

*Trachyphonus erythrocephalus*, *T. boehmi* and *T. arnaudi*: notes on, *id.* t. c. pp. 310 & 311.

*Barbatula ugandæ*, n. sp., Uganda; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Jan. 1892, p. 1: *id.* J. f. O. 1892, p. 25. *B. coryphæa*, n. sp., Cameroons, *id.* Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 3, and J. f. O. 1892, p. 181, Tab. ii, fig. 2. *B. leucomystax*, n. sp., Sotik, E. C. Africa, R. B. SHARPE, Ibis, 1892, p. 311.

## Suborder INDICATORES.

*Indicator pygmaeus*, n. sp., Victoria Nyanza, A. REICHENOW, J. f. O. 1892, p. 132.

## Suborder PICI.

## Family PICIDÆ.

## Subfamily PICINÆ.

*Celeus kerri* [Zool. Rec. xxviii, *Aves*, p. 55], figured; J. GRAHAM KERR, Ibis, 1892, pl. iii.

*Brachypternus ceylonus*: eggs and nesting; F. LEWIS, J. A. S. (Ceylon) xii, pp. 63-65.

*Picus leuconotus*, in Carinthia; F. SCHULZ, Orn. Jahrb. iii, p. 203. *P. major*, in Scotland; J. A. HARVIE BROWN, Ann. Scott. N. H. i, pp. 1-17.

- Sphyrapicus varius*: young in captivity; F. BOLLES, Auk, ix, pp. 109-119.
- Thriponax kalinowskii*, figured; C. W. CAMPBELL, Ibis, 1892, pl. v; not distinct from *T. richardsi*, Tristr.; H. SEEBOHM, t. c. pp. 248-250: P. Z. S. 1892, p. 195: from Tsu-sima, *id.* Ibis, 1892, p. 399: figured; J. IJIMA, J. Sci. Coll. Tokio, v, pl. xii.
- Centurus bahamensis*, n. sp., Great Bahama I., Bahamas, C. CORY, Auk, ix, p. 270.
- Campothera tullbergi*, n. sp., Cameroons, Y. SJÖSTEDT, J. f. O. 1892, pp. 313 & 314.
- Colaptes*: remarks on the North American species; J. A. ALLEN, Bull. Am. Mus. iv, Art. ii, pp. 21-44, pl. ii.

## Subfamily PICUMNINÆ.

- Picumnus obsoletus*, n. sp., Venezuela, J. A. ALLEN, Bull. Am. Mus. iv, Art. v, p. 55.

## Order EURYLÆMI.

- Calypptomena hosii*, n. sp., Mt. Dulit, Sarawak, R. B. SHARPE, Ann. & Mag. N. H. (6) ix, p. 249: figured, Ibis, 1892, pl. xi.

## Order MENURÆ.

- Menura victoriæ*: nest figured; A. J. CAMPBELL, C.R. ii, Congr. Orn. Intern. ii, p. 156.

## Order PASSERIFORMES.

## Section A. OSCINES.

## Family CORVIDÆ.

- Palæocorax*, n. g. Type, *Corvus moriorum*, Forbes; H. O. FORBES, Bull. B. O. C., No. 4, p. xxi.
- Corvus præcorax*, n. sp. (fossil), Pliocene of France, see C. DÉPERET, C.R. cxiv, p. 690. *C. annectens*, n. sp. (fossil), Pliocene of Oregon, R. W. SHUFELDT, J. Ac. Philad. ix, p. 419. *C. intermedius*, remarks on; W. E. BROOKS, Ibis, 1892, p. 59.
- Trypancorax frugilegus*: on the feathered bill; R. SERVICE, Ann. Scott. N. H. i, pp. 218 & 219.
- Nucifraga caryocatactes*: breeding in East Prussia; E. HARTERT, Ibis, 1892, p. 370.
- Garrulus glandarius*: migration in Belgium; E. DE SÉLYS-LONGCHAMPS, C.R. ii, Congr. Orn. Intern. ii, p. 178.
- Aphelocoma californica*, in Washington; R. H. LAWRENCE, Auk, ix, p. 301.
- Cyanocorax cyanopogon*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clx, fig. 1.
1892. [VOL. XXIX.]

- Perisoreus canadensis*, in Massachusetts; R. O. MORRIS, Auk, ix, p. 395.  
*Crypsirhina nigra*, n. sp., Hainan, F. W. STYAN, Bull. B. O. C., No. 2,  
 p. vi [? = *Temnurus truncatus*, R. B. SHARPE, *op. cit.* No. iv, p. xi.]  
*Pyrrhocorax primigenius* (fossil), in France; E. RIVIÈRE, C.R. Ass. Fr.  
 Sci. xx, p. 400.

### Family PARADISEIDÆ.

- Ptilorhis victoria*: nest and egg; A. J. CAMPBELL, Vict. Nat. viii,  
 pp. 134 & 135.  
*Paradisea raggiana*: nest and egg; P. CROWLEY, Bull. B. O. C., No. 4,  
 p. xvi (3), v, pp. 218-220, pl. xv.  
*Craspedophora mantoui*, figured; E. OUSTALET, N. Arch. Mus.  
*Diphyllodes chrysoptera septentrionalis*, n. subsp., N. E. New Guinea;  
 A. B. MEYER, J. f. O. 1892, pp. 260-262.  
*Manucodia comrii*: nest and egg described; A. J. NORTH, Rec. Austral.  
 Mus. ii, p. 32.

### Family PTILONORHYNCHIDÆ.

- Amblyornis subalaris*: plan of its bower; C. W. DE VIS, Ann. Report  
 Brit. New Guinea, 1890-91, App. cc, p. 95, cum fig.  
*Chlamydodera cerviniventris* and *C. maculata*: notes on eggs; P. CROWLEY,  
 Bull. B. O. C., No. 4, p. xvi.

### Family STURNIDÆ.

- KOEPERT, O. Der Star (*Sturnus vulgaris*) in volkswirtschaftlicher und  
 biologische Beziehung. Altenburg: 1892, 115 pp.  
*Sturnus vulgaris*, figured; LORD LILFORD, Col. Fig. Br. Birds, part xxii.

### Family EULABETIDÆ.

- Acridotheres torquatus*, n. sp., Pahang, E. Malay Archipelago; W. R.  
 DAVISON, Ibis, 1892, pp. 102 & 103: is an *Æthiopsar*; R. B. SHARPE,  
 Bull. B. O. C., No. 2, p. vii.  
*Calornis enganensis*, n. sp., I. of Engano; T. SALVADORI, Ann. Mus.  
 Genov. (2) xii, p. 137.  
*Onychognathus preussi*, n. sp., Cameroons; A. REICHENOW, Ber. Allg.  
 Deutsch. Ges., Feb. 1892, p. 4; *id.* J. f. O. 1892, p. 184.  
*Gracula enganensis*, n. sp., I. of Engano; T. SALVADORI, Ann. Mus. Genov.  
 (2) xii, pp. 137 & 138.

### Family PARAMYTHIDÆ.

- Paramythia*, n. g. Type, *P. montium*, n. sp., Mt. Suckling, S. E. New  
 Guinea; C. W. DE VIS, Ann. Rep. Brit. New Guinea, App. cc,  
 p. 95.

## Family DICRURIDÆ.

*Chibia bracteata*, in Tasmania ; W. V. LEGGE, P. R. Soc. Tasm. 1888, pp. xix, xx & pp. 93-94 (1889).

## Family ORIOLIDÆ.

*Oriolus hosii*, n. sp., Mt. Dulit, Borneo ; R. B. SHARPE, Bull. B. O. C., No. 2, p. iv.

*Oriolus celebensis* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxvi, fig. 1.

## Family ICTERIDÆ.

*Quiscalus* : notes on the species ; F. M. CHAPMAN, Bull. Am. Mus. iv, pp. 1-16, pl. i.

*Ptiloxena*, n. g. Type, *P. atrovioleacea*, of Cuba ; *id. t. c.* p. 307.

*Scolecophagus affinis*, n. sp. (fossil), Equus Beds, Oregon ; R. W. SHUFELDT, J. Ac. Philad. ix, pp. 418 & 419.

*Dives kalinowskii*, n. sp., Ica, Peru ; H. VON BERLEPSCH & J. STOLZMANN, P. Z. S. 1892, p. 378.

*Molothrus occidentalis*, n. sp., Lima, Peru ; *id. t. c.* p. 378. *M. ater*, in Mexico ; A. DUGES, Nat. Mex. (2) ii, pp. 103-106. *M. robustus*, parasitic on *Buarremon gutturalis* ; G. K. CHERRIE, Auk, ix, pp. 25-27.

## Family PLOCEIDÆ.

## Subfamily VIDUINÆ.

*Cryptospiza reichenowi* : ♂ described ; A. REICHENOW, J. f. O. 1892, p. 187. *C. salvadorii*, n. sp., Shoa ; *id. Ber. Allg. Deutsch. Ges.*, Feb. 1892, p. 6.

*Hypochera* : notes on the species ; *id. J. f. O.* 1892, p. 49.

*Munia sinensis* : notes on ; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, p. 132.

*M. nisoria* and its allies ; *id. t. c.* pp. 202-204.

*Estrellda roseicrissa*, n. sp., Bukoba, Victoria Nyanza ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 7 ; *id. J. f. O.* 1892, p. 47.

## Subfamily PLOCEINÆ.

*Symplectes croconotus* and *S. tephronotus*, n. spp., Cameroons ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 4 ; *id. J. f. O.* 1892, p. 186. *S. melanogaster*, ♂ described ; *id. J. f. O.* 1892, p. 185. *S. preussi*, n. sp., Cameroons ; *id. t. c.*, Sept. 1892, p. 6.

*Malimbus* : notes on species in Liberia ; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, pp. 24-28. *M. rachilæ* : female described ; Y. SJÖSTEDT, J. f. O. 1892, p. 313.

## Family TANAGRIDÆ.

- Euphonia* : notes on the Costa Rican species, with 'Key'; G. K. CHERRIE, Auk, ix, pp. 23-25.
- Rhamphocelus costaricensis*, n. sp., Costa Rica; *id.* An. Mus. Costa Rica, iii, p. 135. *R. atrosericeus capitalis*, n. subsp., Venezuela; J. A. ALLEN, Bull. Am. Mus. iv, Art. v, p. 51.
- Saltator immaculatus*, n. sp., Lima, Peru; H. VON BERLEPSCH & J. STOLZMANN, P. Z. S. 1892, p. 375.
- Pyranga testacea tschudii*, n. subsp., Lima, Peru; *id.* t. c. p. 375.

## Family CÆREBIDÆ.

- Cæreba bartolemica* and allies : notes on; C. B. CORY, Cat. W. Ind. Birds, pp. 154 & 155. *C. uropigialis*, n. sp., Curaçao; H. VON BERLEPSCH, J. f. O. 1892, pp. 77-81.

## Family DREPANIDÆ.

- Hemignathus obscurus*, *H. olivaceus*, *H. procerus*, *H. hanapepe*, figured; S. B. WILSON & A. H. EVANS, Av. Haw. part iii.
- Vestiaria coccinea* : skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxiii, fig. 2.
- Himatione fraithii*, n. sp., Laysan I., Sandwich Group, W. ROTHCHILD, Ann. & Mag. N. H. (6) x, p. 109. *H. parva*, *H. montana*, and *H. stejnegeri*, figured; S. B. WILSON & A. H. EVANS, Av. Haw., part iii.
- H. sanguinea* : skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxiii, fig. 1.
- Loxioides baillieni* : skeleton figured; *id.* op. cit. Taf. clxv, fig. 2.
- Psittacinostra psittacea* : skeleton figured; *id.* t. c. fig. 1.

## Family FRINGILLIDÆ.

## Subfamily COCCOTHTRAUSTINÆ.

- Coccothraustes vespertina*, in Ontario; Trans. Can. Inst. iii, pp. 111-124 : notes on; A. W. BUTLER, Auk, ix, pp. 238-274.
- Pyrrohulagra* for *Loxigilla* : L. STEJNEGER, in Cory, Cat. W. Ind. Birds, p. 148. *P. noctis grenadensis*, n. subsp., Grenada, and *P. n. ridgwayi*, Antigua; C. B. CORY, t. c. p. 150.

## Subfamily FRINGILLINÆ.

- Acanthis*, Bechst., = *Carduelis*; P. L. SCLATER, Ibis, 1892, pp. 555-557.
- Serinus serinus*, in Devonshire; W. E. H. PIDSLEY, Zool. 1892, p. 114.
- Rhoducanthis*, n. g. Type, *R. palmeri*, Kona, Hawaii; W. ROTHCHILD, Ann. & Mag. N. H. (6) x, pp. 110 & 111. *R. flaviceps*, n. sp., Kona, Hawaii, *id.* t. c. p. 111.

- Telespyza flavissima*, n. sp., Laysan I., Sandwich Group, *id. t. c.* p. 110.  
*Carpodacus erythrinus*, breeding in East Prussia; E. HARTERT, Ibis, 1892, p. 368.  
*Uragus henricii*, n. sp., Tibet; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 291, pl. xi, fig. 2.  
*Eurhinospiza*, n. g. Type, *E. henrici*, n. sp.; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 293, pl. xi.  
*Hyphantospiza*, n. g. Type, *H. olivacea* (Fraser); A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges. xi, p. 6.  
*Loxia curvirostra*, in Ireland; R. J. USSHER, Irish Nat. i, pp. 6-9 & 28-31. *L. bifasciata*, in Belgium; A. DE SELYS-LONGCHAMPS, C.R. ii, Congr. Orn. Intern. ii, p. 177.  
*Pinicola enucleator*, in Heligoland; H. GÄTKE, Orn. Jahrb. iii, p. 202.

## Subfamily EMBERIZINÆ.

- Emberiza cirrus*: its distribution in Great Britain; O. V. APLIN, Zool. 1892, pp. 121-128 & 174-181. *E. hortulana*, in E. Bohemia; K. KNĚŽOWREK, Orn. Jahrb. iii, pp. 64-66. *E. cia*, near Graz; A. v. MOJSISOVICS, *t. c.* p. 79. *E. pusilla*, from Borneo; R. B. SHARPE, Bull. B. O. C. ii, p. iv.  
*Zonotrichia albicollis*, in California; R. RIDGWAY, Auk, ix, p. 302.

## Family ALAUDIDÆ.

- Alauda gulgula* and allies: remarks on; W. E. BROOKS, Ibis, 1892, pp. 61 & 62. *A. brachydactyla*, near Vichy, France; Rev. Sci. Bourb. v, p. 53. *A. yeltoniensis*, in Heligoland; H. GÄTKE, Orn. Jahrb. iii, p. 202.  
*Alæmon margaritæ*: eggs described; S. ALESSI, J. f. O. 1892, pp. 314 & 315.  
*Otocorys berlepschi*, figured; E. HARTERT, Ibis, 1892, pl. xiii.

## Family MOTACILLIDÆ.

- Motacilla raii*, on the migration of; J. CORDEAUX, Zool. 1892, pp. 389-391.  
*Anthus blakistoni*, remarks on; W. E. BROOKS, Ibis, 1892, p. 61. *A. gustavi*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxi, fig. 1.

## Family MNIOTILTIDÆ.

- Seiurus noveboracensis notabilis*, in New Jersey; W. C. SOUTHWICK, Auk, ix, p. 303.  
*Dendroica petechia flaviceps*, n. subsp., Bahama Is., M. CHAPMAN, Bull. Am. Mus. iv, pp. 310 & 311. *D. nigrifrons*, ♂ ♀ figured; W. BREWSTER, Auk, ix, pl. i. *D. dugesi*, figured; A. DUGÈS, Nat.

Mex. (2) ii, pp. 97 & 98, pl. v, fig. 1. *D. pennsylvanica* nesting in Missouri; B. F. GAULT, Auk, ix, p. 396.

*Helminthophila pinus* × *H. leucobronchialis*; F. M. CHAPMAN, *t. c.* p. 302. *H. leucobronchialis*, in Queen's Co., Long I.; A. H. HOWELL, *t. c.* p. 306.

### Family CETHIIDÆ.

*Certhia familiaris*, figured; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. pt. I. *C. mexicana* from Nicaragua; O. SALVIN & F. D. GODMAN, Ibis, 1892, p. 325.

### Family SITTIDÆ.

*Sitta cæsia homeyeri*, in East Prussia; E. HARTERT, Ibis, 1892, pp. 364 & 365. *S. neumayeri*, figured; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. pt. xl.

### Family MELIPHAGIDÆ.

*Viridonia*, n. g. Type, *V. sagittirostris*, n. sp., Sandwich Is.; W. ROTHSCCHILD, Ann. N. H. (6) x, p. 112.

*Melipotes maculata*, n. sp., Mt. Suckling, S. E. New Guinea; C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, App. cc, p. 94; *id.* Ann. Queensl. Mus. No. 2, p. 5.

*Ptilotis frenata*: nest and eggs described and figured; A. J. NORTH, Rec. Austral. Mus. ii, p. 15, pl. iii.

*Stigmatops ocularis*: remarks on; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, pp. 199 & 200.

*Acruilocercus braccatus*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxiv, fig. 1.

### Family NECTARINIIDÆ.

*Nectarinia gadowi*, n. sp., Benguela; J. V. BARBOZA DU BOCAGE, Journ. Lisb. (2) No. viii, p. 256. *N. osea*, near Beyrout; W. T. VAN DYCH, Ibis, 1892, p. 469.

*Cinnyris nesophilus*, n. sp., Anjuan I., G. E. SHELLEY, Bull. B. O. C., No. 2, p. iv. *C. oritis* and *C. preussi*, n. spp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., March, 1892, p. 4: *id.* J. f. O. 1892, p. 190.

### Family DICEIDÆ.

*Dicæum wilhelminæ*, n. sp., Sumba I., J. BÜTTIKOFER, Notes Leyd. Mus. xiv, p. 199.

## Family ZOSTEROPIDÆ.

*Zosterops incerta*, n. sp., I. of Engano, Sumatra, T. SALVADORI, Ann. Mus. Genov. (2) xii, p. 133. *Z. squamifrons*, n. sp., Mt. Dulit, N. W. Borneo, R. B. SHARPE, Ibis, 1892, p. 323. *Z. anderssoni*, n. sp., Damaraland, G. E. SHELLEY, Bull. B. O. C., No. 2, p. v. *Z. stuhlmanni*, n. sp., Victoria Nyanza, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., March, 1892, p. 7 : *id.* J. f. O. 1892, p. 54. *Z. stenocricota*, n. sp., Cameroons, *id.* Ber. Allg. Deutsch. Ges., March, 1892, p. 7 : *id.* J. f. O. 1892, p. 191. *Z. flavilateralis*, n. sp., East Africa, *id. t. c.* p. 192. *Z. superciliosa*, n. sp., Equatorial Africa, *id. ibid.* *Z. atrifrons* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxxiii, fig. 1. *Z. mussoti*, n. sp., Szechuen, E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 289.

## Family REGULIDÆ.

*Regulus* : notes on the genus, with key to species ; T. PLESKE, Mém. biol., Taf. xiii, livr. 2, pp. 303-337. *R. tristis*, n. sp., *id. t. c.* p. 306, Turkestan. *R. himalayensis*, remarks on ; W. E. BROOKS, Ibis, 1892, p. 59.

## Family PARIDÆ.

*Parus cristatus*, in West of France ; L. BUREAU, Bull. Soc. Sci. Nat. Ouest France, ii, p. 143. *P. major*, double nest ; E. LOVETT, P. Tr. Croydon Nat. Hist. Club, 1892, pp. 330 & 331. *P. pleskei*, in Belgium ; E. DE SÉLYS-LONGCHAMP, C.R. ii, Congr. Orn. Intern. ii, p. 178. Notes on synonymy of European species ; v. TSCHUSI ZU SCHMIDHOFFEN, Orn. Jahrb. iii, pp. 175-178. *P. xanthostomus*, n. sp., R. Zambesi, G. E. SHELLEY, Bull. B. O. C., No. 2, p. vi. *P. rovuæ*, n. sp., Rovuma River, *id. ibid.*

*Leptopocile henrici*, n. sp., Tibet ; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 287, pl. x, fig. 1.

*Acredula irbii*, in South Tirol ; V. RITTER VON TSCHUSI ZUR SCHMIDHOFFEN, Orn. Jahrb. iii, p. 122. *A. macedonica*, n. sp., Macedonia, T. SALVADORI & H. E. DRESSER, Bull. B. O. C. No. 4, p. xvi. *A. bonvaloti*, n. sp., Tà-tsién-lou ; E. OUSTALET, Ann. Sci. Nat. (7) xii, pp. 284-286, pl. ix, fig. 1.

## Family LANIIDÆ.

APLIN, O. V. Further remarks upon Grey Shrikes, Zool. 1892, p. 112.

DRESSER, N. E. Remarks on *Lanius lahtorn* and its allies. Ibis, 1892, pp. 288-293.

— Notes on the Palæarctic species of the genus *Lanius*, *t. c.* pp. 374-380.

- Lanius excubitor*, in Gloucestershire ; A. L. CLARKE, Zool. 1892, p. 151.  
*L. mackinmoni* [Zool. Rec. xxviii, *Aves*, p. 62], in Cameroons ;  
 A. REICHENOW, J. f. O. 1892, p. 184. *L. minor*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. part xlix. *L. rufus*, in Great Britain ; O. V. APLIN, Zool. 1892, pp. 345-352 : in Sussex ; T. PARKIN, *t. c.* p. 230 : in South Devon ; E. A. ELLIOT, *t. c.* p. 412.  
*Laniarius gubernator*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Sept. 1892, p. 5.  
*Nilais nigritemporalis*, n. sp., Ngoma, Equatorial Africa, *id. t. c.* p. 3 : *id.* J. f. O. 1892, pp. 36 & 37.  
*Hypocolius ampelinus*, ♂ ♀ figured ; P. L. SCLATER, P. Z. S. p. 470.  
*Eopsaltria sudestiensis*, n. sp., Sud-est I., Louisiade Archipelago, C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, p. 96 : Ann. Queensl. Mus. No. 2, p. 8.

### Family AMPELIDÆ.

- Ampelis macsi*, n. sp., Japan, E. OUSTALET, N. Arch. Mus. Paris (3) iv, pp. 213-216.

### Family VIREONIDÆ.

- Vireo* : notes on West Indian species ; C. B. CORY, Cat. W. Ind. Birds, pp. 152-154. *V. olivaceus*, in British Colombia and Washington ; C. F. BATCHELDER, Auk, ix, pp. 395 & 396.

### Family TURDIDÆ.

- Geocichla everetti*, n. sp., Mt. Dulit, Sarawak, Borneo, R. B. SHARPE, Ibis, 1892, pp. 323 & 324. *G. leucolæma*, n. sp., Isle of Engano, T. SALVADORI, Ann. Mus. Genov. (2) xii, pp. 135 & 136.  
*Turdus nigrilorum*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., March, 1892, p. 4 : *id.* J. f. O. 1892, p. 194.  
*Merula celebensis*, n. sp., Macassar, Celebes, J. BÜTTIKOFER, Notes Leyd. Mus. xv, p. 109. Notes on *M. javanica*, *M. seebohmi* and *M. schlegeli*, *id. t. c.* pp. 107-110. *M. elgonensis* [Zool. Rec. xxviii, *Aves*, p. 63], fully described ; R. B. SHARPE, Ibis, 1892, pp. 160 & 161.  
*Phæornis obscura* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxiv, fig. 2.  
*Callene hypoleuca*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 6 : *id.* J. f. O. 1892, p. 194, tab. ii, fig. 3.  
*Cossypha polioptera*, n. sp., Victoria Nyanza, *id. t. c.* p. 133.  
*Erythacus sibilans*, from Hainan ; G. HARTLAUB, Abh. Ver. Brem. xii, pp. 304 & 305. *E. rubecula*, figured ; LORD LILFORD, Col. Fig. Br. Birds, part xxii.  
*Cyanecula suecica*, in Orkney ; T. E. BUCKLEY, Ann. Scott. N. H. 1892, p. 70.

- Ruticilla tithys*, in Lancashire ; F. BROWNSWOOD, Zool. 1892, p. 115. *R. moussieri*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. part xlviii.
- Pratincola pallidigula*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., April, 1892, p. 4 : *id.* J. f. O. 1892, p. 194. *P. indica*, remarks on ; W. E. BROOKS, Ibis, 1892, p. 60. *P. rubicola*, in N. E. Germany ; H. SCHALOW, SB. nat. Fr. 1892, pp. 141-145. *P. maura przewalskii* ; TH. PLESKE, Bull. Pétersb. (3) xxxv, p. 129.
- Cercomela (Myrmecocichla) melanura*, note on the habits ; H. E. BARNES, J. Bomb. N. H. Soc. vii, pp. 252 & 253.
- Thamnolæa nigra* and its allies ; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, pp. 17 & 18. *T. shelleyi*, notes on, J. V. BARBOZA DU BOCAGE, J. Sci. Lisb. (2) vii, pp. 167-170.
- Saxicola leucomela*, figured ; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. p. xlix.

## Family SYLVIIDÆ.

- Sylvia nisoria* in Yorkshire ; J. CORDEAUX, Zool. 1892, p. 424 ; *id.* P. Z. S. 1892, p. 542 : records of capture in Great Britain ; H. SEEBOHM, Bull. B. O. C., No. 3, p. xi.
- Hypolais caligata* and *H. roma* : remarks on ; W. E. BROOKS, Ibis, 1892, pp. 59 & 60. *H. rama* and *Acrocephalus streperus* : hybrid described ; TH. PLESKE, Orn. Ross. pp. 561-563.
- Phylloscopus neglectus* and *P. sindianus* : remarks on ; W. E. BROOKS, Ibis, 1892, p. 60. *P. rufus*, wintering in Somerset ; R. H. READ, Zool. 1892, p. 111 : unusual nesting ; *id. ibid.* : notes on nesting ; J. BACKHOUSE, *t. c.* p. 150 ; C. F. ARCHIBALD, *t. c.* p. 226. *P. superciliosus*, in Lincolnshire ; G. H. CATON HAIGH, Zool. 1892, p. 413.
- Acanthopneuste ijimæ*, n. sp., Seven Is., Japan ; L. STEJNEGER, P. U. S. Nat. Mus. xv, p. 372.
- Luscinola melanopogon*, in Hungary ; A. GRUNACK, J. f. O. 1892, pp. 213 & 214.
- Locustella naevia*, nesting in S. W. Scotland ; R. SERVICE, Zool. 1892, p. 333. *L. ochotensis*, ad. et juv., figured ; TH. PLESKE, Orn. Ross., tab. 4, figs. 1 & 2.
- Cettia canturiens*, ♂ ad. figured ; *id. t. c.*, tab. iv, fig. 3. *C. minuta* ; *id. t. c.*, tab. iv, fig. 4. *C. canturiens septentrionalis*, n. subsp., Russian Manchuria ; C. W. CAMPBELL, Ibis, 1892, p. 235. *C. canturiens borealis*, n. subsp., Corea ; *id. t. c.* p. 235.
- Urosphena squamiceps*, ad. figured ; T. PLESKE, Orn. Ross., tab. iv, fig. 5.
- Acrocephalus fruticola* (Naum.), in E. Prussia ; E. HARTERT, Ibis, 1892, pp. 361 & 362. *A. palustris*, in Oxfordshire ; W. WARDE FOWLER, Zool. 1892, pp. 303-309.
- Tatare* : notes on the species ; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, pp. 13-16. *T. familiaris*, n. sp., Laysan I., Sandwich Group ; W. ROTHSCHILD, Ann. N. H. (6) x, p. 109.

- Burnesia epichlora*, n. sp., Camaroons ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 6 ; figured, *id.* J. f. O. 1892, p. 193, tab. ii, fig. 1.
- Drymæca saharæ*, figured ; A. KOENIG, J. f. O. 1892, tab. iii.
- Apalis mystacalis* [Zool. Rec. xxviii, *Aves*, p. 65], figured ; A. REICHENOW, *t. c.* tab. i, fig. 2. *A. jacksoni* [Zool. Rec. xxviii, *Aves*, p. 65], figured ; R. B. SHARPE, Ibis, 1892, pl. iv, fig. 2. *A. pulchra* [Zool. Rec. xxviii, *Aves*, p. 65], figured ; *id.* *t. c.* pl. iv, fig. 1.
- Camaroptera griseigula*, n. sp., Teita, E. Africa ; *id.* *t. c.* p. 158.
- Malurus mortoni*, n. sp., Sudest I., Louisiade Archipelago ; C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, p. 97 ; *id.* Ann. Queensland Mus. No. 2, p. 9.
- Acanthiza tenkatei*, n. sp., Flores ; J. BÜTTIKOFER, Notes Leyd. Mus. xiv, p. 195.
- Cisticola emini*, n. sp., Victoria Nyanza ; A. REICHENOW, J. f. O. 1892, p. 56. *C. chubbi*, n. sp., Mt. Elgon, E. C. Africa ; R. B. SHARPE, Ibis, 1892, pp. 157 & 158.
- Graminicola striata*, n. sp., Hainan ; F. W. STYAN, Bull. B. O. C., No. 2, p. vi.

#### Family TROGLODYTIDÆ.

- Elachura haplonota*, n. sp. [*E. immaculata* on plate], from N. Cachar, Assam ; E. C. S. BAKER, J. Bomb. N. H. Soc. vii, pp. 319-322 ; Ibis, 1892, pp. 62-64, pl. i, fig. 1. *E. punctata*, figured ; *id.* *t. c.* pl. i, fig. 2.

#### Family CINCLIDÆ.

- Cinclus* : notes on some Palæarctic species ; H. E. DRESSER, Ibis, 1892, pp. 380-387. *C. melanogaster pyrenaicus*, range of ; O. V. APLIN, Zool. 1892, p. 359. *C. pallasi*, var. *soulliei*, n. subsp., Tibet ; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 299.

#### Family MIMIDÆ.

- Mimus polyglottus*, formerly in New Jersey ; S. LOCKWOOD, Am. Nat. xxvi, pp. 635-641.
- Harporhynchus curvirostris palmeri* : its nesting habits ; H. BROWN, Zoe, iii, pp. 243-248.

#### Family TIMELIIDÆ.

- Babax lanceolatus*, var. *bonvaloti*, n. subsp., So, Tibet ; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 273.
- Pomatorhinus maclellandi*, var. *dedekensi*, n. subsp., Tioungou ; *P. m.*, var. *armandi*, n. subsp., Aio, Tibet ; E. OUSTALET, *t. c.* pp. 276 & 277.

- Trochalopteron henricii*, n. sp., So, Tibet ; E. OUSTALET, Ann. Sci. Nat. (7) xii, p. 274. *T. bonvaloti*, n. sp., Tioungou, *id. t. c.* p. 275.
- Suthora fulvicauda* and *S. longicauda*, n. spp., Corea ; C. W. CAMPBELL, Ibis, 1892, p. 237.
- Amalocichla*, n. g. Type, *A. sclateriana*, n. sp., Mt. Suckling, S. E. New Guinea ; C. W. DE VIS, Ann. Rep. Brit. New Guinea, App. cc, 1890-91, p. 95 ; *id.* Ann. Queensland Mus., No. 2, pp. 5 & 6.
- Orthonyx spinicauda* : nest described and egg figured ; A. J. NORTH, Rec. Austral. Mus. ii, pp. 15 & 16, pl. ii, fig. 5.
- Turdinus monachus*, n. sp., Cameroons ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 4 ; *id.* J. f. O. 1892, p. 193. *T. moloneyanus*, n. sp., Gold Coast ; R. B. SHARPE, P. Z. S. 1892, p. 228, pl. xx, fig. 2.
- Amaurocichla*, n. g. Type, *A. bocagii*, n. sp., St. Thomas, West Africa ; *id. t. c.* p. 228, pl. xx, fig. 1.
- Ptilocichla leucogastra*, n. sp., Pahang, E. Malay Peninsula, W. R. DAVISON, Ibis, 1892, pp. 100 & 101.
- Malacopteron melanocephalum*, n. sp., Pahang, E. Malay Peninsula, *id. t. c.* pp. 101 & 102.
- Eupetes geislerorum*, n. sp., Butaueng, N. E. New Guinea ; A. B. MEYER, J. f. O. 1892, pp. 259 & 260.
- Stachyris davisoni*, n. sp., Pahang, E. Malay Peninsula, R. B. SHARPE, Bull. B. O. C., No. 2, p. vii.
- Alcippe bieti*, n. sp., E. OUSTALET, Tà-tsién-lou, Ann. Sci. Nat. (7) xii, p. 304.

### Family PYCNONOTIDÆ.

- Hypsipetes psaroides* and *H. concolor* : account of nesting habits ; E. C. S. BAKER, J. Bomb. N. H. Soc. vii, pp. 129 & 265.
- Hemixus flava* : account of nesting habits ; *id. t. c.* p. 7.
- Criniger aureus*, note on ; A. B. MEYER, Ibis, 1892, pp. 178 & 180. *C. flaveolus*, figured with nest ; E. C. S. BAKER, J. Bomb. N. H. Soc. vii, pl. ii.
- Otocompsa emeria* and *O. flaviventris*, figured with nests ; *id. t. c.* pls. viii & xv.
- Xanthixus flavescens*, figured with nest ; *id. t. c.* pp. 1-4, pl. i.
- Pinarocichla schmackeri*, n. sp., Hainan ; F. W. STYAN, Bull. B. O. C., No. 2, p. vi [= *Criniger pallidus*, Swinhoe ; R. B. SHARPE, *op. cit.* No. 4, p. xix].
- Xenocichla poliocephala*, n. sp., Cameroons ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 5 ; *id.* J. f. O. 1892, p. 189.
- Spizixus canifrons* : account of nesting habits ; E. C. S. BAKER, J. Bomb. N. H. Soc. vii, p. 10.
- Andropadus montanus*, n. sp., Cameroons ; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Feb. 1892, p. 5 ; *id.* J. f. O. 1892, p. 188. *A. cameronensis*, n. sp., Cameroons, *id.* J. f. O. 1892, pp. 126 & 127. *A. eugenius*, n. sp., Victoria Nyanza, *id. t. c.* p. 133.

## Family CAMPOPAGIDÆ.

- Graucalus preussi*, n. sp., Cameroons, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges. xi, p. 4. *G. enganensis*, n. sp., I. of Engano, T. SALVADORI, Ann. Mus. Genov. (2) xii, pp. 129 & 130. *G. nigrifrons*, n. sp., Bugotu, Solomon Is., H. B. TRISTRAM, Ibis, 1892, p. 294. *G. welchmani*, n. sp., Bugotu, *id. t. c.* pp. 294 & 295. *G. leucopygius*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxvi, fig. 2.
- Edoliisma tenuirostre*: nest and eggs described; A. J. NORTH, Rec. Austral. Mus. ii, pp. 13 & 14. *E. morio*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxvii, fig. 2.
- Campophaga minor*, n. sp., Pahang, E. Malay Peninsula, W. R. DAVISON, Ibis, 1892, p. 99 [= *Lalage culminata*; R. B. SHARPE, Bull. B. O. C., No. 2, p. vii].
- Pericrocotus modiglianii*, n. sp., I. of Engano, T. SALVADORI, Ann. Mus. Genov. (2) xii, pp. 130-132. *P. wrayi* = *P. montanus*: *P. cinereigula* also probably identical; R. B. SHARPE, Ibis, 1892, p. 435.
- Lalage leucopygialis*: skeleton figured; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxvii, fig. 1.

## Family MUSCICAPIDÆ.

- Alseonax pumila*, n. sp., Bukoba, Victoria Nyanza, A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Jan. 1892, xi, p. 3; *id. J. f. O.* 1892, pp. 32 & 33.
- Platystira jacksoni* [Zool. Rec. xxviii, *Aves*, p. 67], fully described and figured; R. B. SHARPE, Ibis, 1892, p. 301, pl. vii, fig. 2.
- Muscicapa grisola*: supposed occurrence in N. Zealand; F. W. HUTTON, Tr. N. Z. Inst. xxiv, p. 710 [Determination erroneous; *teste* H. O. FORBES]. *M. collaris*, figured; E. H. GIGLIOLI & A. MANZELLA, Iconogr. Avif. Ital. pt. xlix.
- Erythrosterina parva*, figured; *id. t. c.* pt. xlix.
- Muscicapa johnstoni* = *Dioptrornis fischeri*; R. B. SHARPE, Ibis, 1892, pp. 300 & 301.
- Rubecula tytleri*, Jameson = *Muscicapa parva*; W. E. CLARKE, Ibis, 1892, pp. 558 & 559.
- Pedilorhynchus stuhlmanni* [Zool. Rec. xxviii, *Aves*, p. 67], figured; A. REICHENOW, J. f. O. 1892, tab. i, fig. 1: in Cameroons; *id. t. c.* p. 183.
- Gerygone insperata*, n. sp., Mt. Suckling, S. E. New Guinea, C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, App. cc, p. 94; *id. Ann. Queensland Mus.* No. 2, p. 4. *G. pectoralis*, n. sp., Pahang, E. Malay Peninsula; W. R. DAVISON, Ibis, 1892, pp. 99 & 100 [= *G. modiglianii*, Salvad. (Zool. Rec. xxviii, *Aves*, p. 67); R. B. SHARPE, Bull. B. O. C., No. 2, p. vii].
- Pacilodryas vicaria*, n. sp., Mt. Suckling, S. E. New Guinea, C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, App. cc, p. 94: Ann. Queensland Mus. No. 2, p. 4.

- Hyliota nehrkorni*, n. sp., Accra, G. HARTLAUB, Ibis, 1892, p. 373, pl. viii.  
 Review of the species of *Hyliota*; *id.* pp. 373 & 374.
- Parisoma lugens*, fully described; R. B. SHARPE, Ibis, 1892, pp. 302 & 303.
- Trochocercus albonotatus* [Zool. Rec. xxviii, *Aves*, p. 67], figured; R. B. SHARPE, Ibis, 1892, pl. vii, fig. 1.
- Rhipidura*: review of the genus; J. BÜTTIKOFER, Notes Leyd. Mus. xv, pp. 65-98 & 113-115. *R. celebensis*, n. sp., Macassar, p. 79. *R. teysmanni*, n. sp., Macassar, p. 80. *R. meyeri*, n. sp. (*R. braehyrhyncha*, auct., nec Schl.), pp. 82 & 113. *R. sumbawensis*, n. sp., Sumbawa, p. 85. *R. rosenbergi*, n. sp., Aru I., p. 88. *R. hoeedti*, n. sp., Lettie I., p. 93. *R. tenkatei*, n. sp., Rotti I.; *id.* Notes Leyd. Mus. xiv, p. 205. *R. concinna*, n. sp., Mt. Suckling, S. E. New Guinea; C. W. DE VIS, Ann. Rep. Brit. New Guinea, 1890-91, App. cc, p. 94. *R. büttikoferi*, Dammar I., Banda Sea; R. B. SHARPE, Bull. B. O. C., No. 4, p. xviii.
- Elminia schwebischii*, n. sp., Congo; E. OUSTALET, N. Arch. Mus. Paris (3) iv, pp. 216 & 217.
- Cryptolopha bicolor*, n. sp., Hainan; F. W. STYAN, Bull. B. O. C., No. 2, p. vi. [= *Herpornis tyrannulus*, Swinh.; R. B. SHARPE, Bull. B. O. C., No. 4, p. xix.] *C. mackenziana*, n. sp., Kikayu, E. C. Africa; R. B. SHARPE, Ibis, 1892, p. 153. *C. xanthoschistus*: remarks on; W. E. BROOKS, Ibis, 1892, p. 60.
- Siphia luteola*: female described; C. W. CAMPBELL, Ibis, 1892, pp. 233 & 234.

### Family HIRUNDINIDÆ.

- DUCHASSOY, H. De l'arrivée et du départ des Hirondelles. Bull. Soc. L. Nord France, i, pp. 85-92 (1891).
- SHARPE, R. B., & WYATT, C. W. A Monograph of the *Hirundinidæ*, or Family of Swallows. Part xv. 1892, 4to.
- The following species are described and figured:—*Atticora cinerea*; *Hirundo javanica*, *H. tahitica*, *H. namiyei* (no figure), *H. arcticincta*; *Cotile rupestris*; *Tachycineta thalassinus*.
- Hirundo emini*, n. sp., Victoria Nyanza; A. REICHENOW, Ber. Allg. Deutsch. Orn. Ges., Jan. 1892, p. 2; *id.* J. f. O. 1892, pp. 30 & 31.
- Psaldoprocné chalybea*, n. sp., Cameroons; *id. op. cit.*, Sept. 1892, p. 6.

### Section B. OLIGOMYODÆ.

### Family TYRANNIDÆ.

- ALLEN, J. A. On a Collection of Birds from Chapada, Matto Grosso, Brazil, made by Mrs. H. H. Smith [Zool. Rec. xxviii, *Aves*, p. 2]. Part II. *Tyrannidæ*. Bull. Am. Mus. iv, pp. 331-350.
- Lophotriccus subcristatus*, n. sp., Venezuela; *id. t. c.* p. 53.

- Anæretes sclateri*, n. sp., Chili ; E. OUSTALET, N. Arch. Mus. Paris (3) iv, pp. 217 & 218.
- Mnionectes semischistaceus*, n. sp., Costa Rica ; G. K. CHERRIE, P. U. S. Nat. Mus. xv, p. 27.
- Ornithion pusillum subflavum*, n. subsp., Costa Rica ; *id. t. c.* p. 28.
- Pitangus jamaicensis*, n. sp., Jamaica ; F. M. CHAPMAN, Bull. Am. Mus. iv, p. 303.
- Pyrocephalus rubineus heterurus*, n. subsp., Lima, Peru ; H. VON BERLEPSCH & J. STOLZMANN, P. Z. S. 1892, p. 381.
- Myiarchus nuttingi*, in Arizona ; A. K. FISHER, Auk, ix, p. 394. *M. brevipennis*, n. sp., I. of Aruba, E. HARTERT, Bull. B. O. C., No. 3, p. xii.

## Family COTINGIDÆ.

- Chasmorhynchus niveus* : position of the Caruncle and method of song ; J. J. QUELCH, J. R. Agr. & Comm. Soc. Brit. Guiana (2) vi, pp. 164-166. *C. tricarunculatus* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clviii.

## Family PITTIDÆ.

- Pitta granatina borneensis*, n. subsp., Borneo, D. G. ELLIOT, Auk, ix, pp. 218-221.
- Erythropitta celebensis* : skeleton figured ; A. B. MEYER, Abbild. Vögel. Skel., Taf. clxi, fig. 1.

## Division II. TRACHEOPHONÆ.

## Family DENDROCOLAPTIDÆ.

## Subfamily FURNARIINÆ.

- Upucerthia harterti*, n. sp., Bolivia, H. VON BERLEPSCH, Ber. Allg. Deutsch. Orn. Ges., Dec. 1892, p. 10.
- Cinclodes taczanowskii*, n. sp., Chorillos, Peru, *id.* & J. STOLZMANN, P. Z. S. 1892, p. 381.

## Family FORMICARIIDÆ.

- Thamnophilus punctatus* and *T. bridgesi*, figured ; O. SALVIN & F. D. GODMAN, Biologia Centrali-americana, *Aves*, ii, pl. xlix, figs. 1 & 2.
- T. atrinucha*, n. sp., Honduras to Ecuador, *id. t. c.* pp. 200 & 201.
- T. immaculatus*, Lafr., is a *Myrmelastes* ; *id. t. c.* p. 225.
- Myrmelastes lawrencii*, n. sp. [= *M. corvinus*, Lawr., nec Gould], Panama, *id. t. c.* pp. 226 & 227. *M. intermedius*, figured [n. s. *Myrmeciza immaculata*], *id. t. c.* pl. li, figs. 2 & 3.
- Thamnestes anabatinus*, ♂ figured ; *id. t. c.* pl. l, fig. 1.

- Dysithamnus puncticeps*, ♂ ♀ figured ; *iid. t. c.* pl. 1, figs. 2 & 3.
- Formicivora stictocorypha*, n. sp., Porto Real, Brazil, A. BOUCARD & H. VON BERLEPSCH, Humming Bird, ii, p. 44.
- Myrmeciza leucosticta*, figured ; *iid. t. c.* pl. li, fig. 1. *M. nigricauda*, n. sp., Ecuador, *iid. t. c.* p. 230. *M. occidentalis*, n. sp., Costa Rica, G. K. CHERRIE, An. Mus. Costa Rica, iii, p. 135.
- Pithys leucaspis* is a *Gymnopithys*; O. SALVIN & F. D. GODMAN, *t. c.* p. 221. *G. ruficeps*, n. sp., Colombia, *iid. t. c.* p. 222, note.
- Grallaria princeps* (pl. lii), *G. dives* (pl. liii, fig. 1), and *G. perspicillata* (pl. liii, fig. 2), figured ; *iid. t. c.* *G. lizanoi*, n. sp., Costa Rica, G. K. CHERRIE, An. Mus. Costa Rica, iii, p. 137.



## IV. REPTILIA AND BATRACHIA.

BY

G. A. BOULENGER.

---

This subject is treated as follows, viz :—

- I. TITLES OF ALL WORKS AND PAPERS ARRANGED ALPHABETICALLY ACCORDING TO AUTHORS' NAMES.
  - II. WORKS AND PAPERS DEALING WITH BOTH REPTILES AND BATRACHIANS.
  - III. FAUNISTIC : A, RECENT ; B, FOSSIL.
  - IV. REFERENCES, ARRANGED SYSTEMATICALLY.
- 

### I. TITLES.\*

- ADOLPHI, H. Ueber Variationen der Spinalnerven und der Wirbelsäule unserer Amphibien. I. *Bufo variabilis*, Pall. Morph. JB. xix, 1892, pp. 313-375, figs., pl. xii.
- AMBROSETTI, J. B. Observaciones sobre los Reptiles fósiles oligocenos de los terrenos terciarios antiguos del Paraná. Bol. Ac. Cordoba, x, 1890, pp. 409-426.
- ANDERSON, J. On a small Collection of Mammals, Reptiles, and Batrachians from Barbary. P. Z. S. 1892, pp. 3-24, pl. i.
- ANDERSSON, O. A. Zur Kenntniss des sympathischen Nervensystems der urodelen Amphibien. Morph. JB. (Anat.), v, 1892, pp. 184-210, pls. xv-xviii.
- AYERS, H. Vertebrate Cephalogenesis. II. A Contribution to the Morphology of the Vertebrate Ear, with a Reconsideration of its Functions. J. Morph. vi, 1892, pp. 1-360, pls. i-xii.
- BATAILLON, E. Contribution à l'étude de la circulation artérielle des Chéloniens. Ann. Soc. L. Lyon (2) xxxix, 1892, pp. 81-86, pl.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

- BAUR, G. Das Variiren der Eidechsen-Gattung *Tropidurus* auf den Galapagos-Inseln. Leuckart Festschrift, 1892, pp. 259-277, figs.
- . On the Morphology of the Skull in the *Mosasauroidea*. J. Morph. vii, 1892, pp. 1-22, pls. i & ii.
- . Bemerkungen über verschiedene Arten von Schildkröten. Zool. Anz. xv, 1892, pp. 155-159.
- . Der Carpus der Schildkröten. Erwiderung an Herrn Prof. Dr. Emil Rosenberg. Anat. Anz. vii, 1892, pp. 206-211, figs.
- . On the Taxonomy of the genus *Emys*, C. Duméril. P. Am. Phil. Soc. xxx, 1892, pp. 40-44. Additional note, t. c. p. 245.
- BEDRIAGA, J. DE. A propos de l'importation et du croisement des Reptiles et des Amphibiens. Lettre à M. le professeur Anatole Bogdanow. C.R. Congrès Internat. Zool. i, 1892, pp. 244 & 245.
- . Les Vipères européennes et circum-méditerranéennes. T. c. pp. 236-241.
- . *Chalcides simonyi*, Steind., et *Molge luschani*, Steind. T. c. pp. 242 & 243.
- . Tableaux synoptiques pour servir à la détermination des larves des Batraciens Urodèles d'Europe. C.R. Ass. Fr. Sci. 1891, ii, pp. 540-546.
- . Ueber die Begattung bei einigen geschwänzten Amphibien (Fortsetzung). Zool. Anz. xvi, 1893, pp. 102-104.
- . Notice sur les Amphibiens et Reptiles recueillis par M. A. F. Moller aux îles de la Guinée. O Istituto (Coimbra), ser. 2, Nos. 6 & 7, 1892 [quoted from a Reprint].
- BENDA, C. Ueber die Histiogenese des Sauropsidenspermatozoons. Verh. Anat. Ges. 1892, pp. 195-199.
- BÉRANEK, E. Sur le nerf pariétal et la morphologie du troisième œil des Vertébrés. Anat. Anz. vii, 1892, pp. 674-689, figs.
- BERTELLI, D. Sulla membrana timpanica della *Rana esculenta*. Mon. Zool. Ital. iii, 1892, pp. 203-207. French translation: Arch. Ital. Biol. xviii, 1893, pp. 458-462.
- BERTOLDO, J. M. Sur le Développement des Axolotls. Le Nat. xiv, 1892, p. 15.
- BIEDERMANN, W. Ueber den Farbenwechsel der Frösche. Arch. ges. Phys. li, 1892, pp. 455-508, pl. xi.
- BOCAGE, J. V. B. DU. Subsídios para a Fauna da Guiné Portuguesa. J. Sci. Lisb. (2) ii, 1892, pp. 179-184.
- . Sur le *Hemidactylus mabouia*, var. *molleri*, Bedriaga, de St. Thomé. T. c. p. 221.
- . Notice sur les Amphibiens et Reptiles recueillis par M. A. F. Moller aux îles de la Guinée. T. c. pp. 229-232.

- [BOCAGE, J. V. B. DU.] Note sur le *Dendraspis* de l'île St. Thomé. J. Sci. Lisb. (2) ii, 1892, pp. 265-267, fig.
- BOCOURT, F. Note sur la variabilité dans le nombre des plaques céphaliques chez certains Ophidiens. Bull. Soc. Z. Fr. xvii, 1892, pp. 40 & 41.
- . Note sur un petit Ophidien appartenant au genre *Tropidoclonium*. Le Nat. xiv, 1892, p. 132.
- . Note sur un Ophidien appartenant au genre *Eutenia*. T. c. p. 278.
- BÆTTGER, O. Katalog der Batrachier-Sammlung im Museum der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt am Main. Frankfurt a/M. : 1892, 8vo, 73 pp.
- . Kriechtiere der Kaukasusländer, gesammelt durch die Radde-Valentin'sche Expedition nach dem Karabagh und durch die Herren Dr. J. Valentin und P. Reibisch. Ber. Senck. Ges. 1892, pp. 131-150.
- . Mitteilung über eine Reptiliensendung von Aden in Süd-Arabien. Ber. Offenb. Ver. xxix-xxxii, 1892, pp. 61-63.
- . Liste von Kriechtieren und Lurchen aus dem tropischen Asien u. aus Papuasien. T. c. pp. 65-157.
- . Drei neue colubriforme Schlangen. Zool. Anz. xv, 1892, pp. 417-420.
- BORN, G. Die Reifung des Amphibieneies und die Befruchtung unreifer Eier bei *Triton taniatus*. Anat. Anz. vii, 1892, pp. 772-781 & 803-811, figs.
- BOULENGER, G. A. Catalogue of the Snakes in the British Museum (Natural History). Vol. I, containing the families *Typhlopidae*, *Glauconiidae*, *Boidae*, *Ilysiidae*, *Uropeltidae*, *Xenopeltidae*, and *Colubridae aglyphae*, part. London : 1893, 8vo, xiii & 448 pp., 28 pls.
- . Reptilia and Batrachia. Appendix to DISTANT'S "Naturalist in the Transvaal." London : 1892, 8vo, pp. 174-176, fig.
- . Remarks on an Iguana with reproduced tail. P. Z. S. 1891, pp. 466 & 467.
- . A Synopsis of the Tadpoles of the European Batrachians. T. c. pp. 593-627, pls. xlv-xlvi.
- . Notes on Transcaspian Reptiles. T. c. pp. 628-633.
- . An Account of the Reptiles and Batrachians collected by Mr. C. Hose on Mt. Dulit, Borneo. Op. cit. 1892, pp. 505-508, pls. xxix & xxx.
- . On newly-discovered East African Chameleons, with Remarks on some other Reptiles described by Dr. Steindachner. Ann. N. H. (6) ix, 1892, pp. 72-74.
- . Description of a new Snake from Nubia. T. c. pp. 74-76.

- [BOULENGER, G. A.] Description of a new Frog from Burma. *Ann. N. H.* (6) ix, 1892, pp. 141 & 142, pl. ix.
- . On Strauch's *Triton longipes*. *T. c.* pp. 144 & 145.
- . Description of new Reptiles and Batrachians from the Loo Choo Islands. *Op. cit.* x, 1892, pp. 302-304.
- . On the Larva of *Molge montandoni*. *T. c.* pp. 304 & 305, fig.
- . On some newly-described Jurassic and Cretaceous Lizards and Rhynchocephalians. *Op. cit.* xi, 1893, pp. 204-210.
- . Description of a new Toad from Travancore. *J. Bomb. Soc.* vii, 1892, pp. 317 & 318.
- . Description of a new Earth-Snake from Travancore. *T. c.* p. 318.
- . Description of a new Tree-Frog from New South Wales. *P. Linn. Soc. N.S.W.* (2) vii, 1892, p. 403.
- . An Investigation into the Variations of the Viper in Great Britain. *Zool.* (3) xvi, 1892, pp. 87-93.
- . Fecundation in the Tailed Batrachians. A summary Review of recent Discoveries. *Morph. JB., Syst.* vi, 1892, pp. 447-452.
- . Marine Snakes. *Nat. Sci.* i, 1892, pp. 44-49, figs.
- . The Poisonous Secretion of Batrachians. *T. c.* pp. 185-190, figs.
- BOUTAN, L. Excursion zoologique à la Montagne de Hummoun ul Faroun (Montagne des bains de Pharaon). *Arch. Z. expér.* (2) x, 1892, pp. 1-22.
- BREHM, A. C. Tierleben, Dritte Auflage. VII. Die Kriechthiere und Lurche. Neubearbeitet von O. BÄTTGER and PECHUEL-LOESCHE. Leipzig & Vienna : 1892, 8vo, xiv, 825 pp., figs., 16 pls., 1 map.
- BURCKHARDT, R. Das Gehirn von *Triceratops flabellatus*, Marsh. *JB. Mineral.* 1892, ii, pp. 71 & 72, fig.
- BUTLER, G. W. On the Subdivision of the Body-cavity in Snakes. *P. Z. S.* 1892, pp. 477-498, pl. xxviii.
- CAMERANO, L. Nota di Biologia alpina. III. Dell' azione dell' acqua corrente e della luce sullo sviluppo degli Anfibi Anuri. *Boll. Mus. Zool. Tor.* viii, 1893, No. 140.
- CARUCCIO, A. Su' Serpenti non velenosi della Provincia di Roma. *Boll. Soc. Rom.* i, 1892, pp. 39-57.
- CHIARUGI, G. Sullo sviluppo del nervo olfattivo nella *Lacerta muralis*. Nota preliminare. *Monit. Zool. Ital.* iii, 1892, pp. 211 & 212. French translation, *Arch. Ital. Biol.* xviii, 1893, pp. 363 & 364.
- COPE, E. D. On the Homologies of the Posterior Cranial Arches in the Reptilia. *Tr. Am. Phil. Soc.* xvii, 1892, pp. 11-26, pls. i-v. Abstract in *Am. Nat.* xxvi, 1892, pp. 407 & 408, pl. xvii.

- [COPE, E. D.] A Synopsis of the Species of the Teiid Genus *Cnemidophorus*. Tr. Am. Phil. Soc. xxvii, 1892, pp. 27-52, pls. vi-xiii [recorded from separate copy].
- . A Contribution to the Vertebrate Palæontology of Texas. P. Am. Phil. Soc. xxx, 1892, pp. 123-131.
- . On *Tiaporus*, a new Genus of Teiidae. T. c. pp. 132 & 133, pl. —.
- . The Osteology of the Lacertilia. T. c. pp. 185-221, pls. ii-vi.
- . On the Skull of the Dinosaurian *Laelaps incrassatus*, Cope. T. c. pp. 240-245.
- . On the Phylogeny of the Vertebrata. T. c. pp. 278-281, figs.
- . The Batrachia and Reptilia of North Western Texas. P. Ac. Philad. 1892, pp. 331-337.
- . A Critical Review of the Characters and Variations of the Snakes of North America. P. U. S. Nat. Mus. xiv, 1892, pp. 589-694.
- . On Degenerative Types of Scapular and Pelvic Arches in the Lacertilia. J. Morph. vii, 1892, pp. 223-244, pl. xiii.
- . On a New Spade-Foot from Texas. Am. Nat. xxvii, 1893, pp. 155 & 156, fig.
- . A New Species of *Eutania* from Western Pennsylvania. Op. cit. xxvi, 1892, pp. 964 & 965, fig.
- . The Vertebrata of the Tertiary and Cretaceous Rocks of the North-West Territory. Contr. Canad. Pal. iii, 1891, 25 pp., 14 pls.
- . Remarks on the communication "Ein fossiler Giftzahn," by Dr. F. Kinkelin. Zool. Anz. xv, 1892, p. 224.
- DEHNER, H. Ueber die sogenannte parthenogenetische Furchung des Frosch-Eies. Verh. Ges. Würzb. (2) xxvi, 1892, pp. 1-18, pl. i.
- DEKHUYSEN, M. C. Ueber das Blut der Amphibien. Verh. Anat. Ges. 1892, pp. 90-103, pl. i.
- DEL PRATO, D. A. Le Raccolte Zoologiche fatte nel Congo dal Cav. Giuseppe Corona. Parma: 1893, 8vo, 14 pp.
- DE VIS, C. W. Zoology of British New Guinea. Part I. Vertebrata. Ann. Queensland Mus. i, 1892, No. 2, pp. 3-12.
- DOLLO, L. Nouvelle Note sur le Champsosaure, Rhynchocéphalien adapté à la vie fluviatile. Bull. Soc. Belg. Géol. v, Mém. pp. 151-199, pls. vi-viii (1892).
- . Sur l'origine de la nageoire caudale des Ichthyosaurus. Op. cit. vi, Proc. Verb. pp. 167-174, figs. (1892).
- . Sur la morphologie des Côtes. Bull. Sci. Fr. Belg. xxiv, 1892, pp. 113-129.
- . Sur la morphologie de la Colonne Vertébrale. T. c. 19 pp. [separate copy].

- DOUGLAS-OGILBY, J. Descriptions of three new Australian Lizards. *Rec. Austral. Mus.* ii, 1892, pp. 6-11.
- . On some undescribed Reptiles and Fishes from Australia. *T. c.* pp. 23-26.
- DOUGLASS, G. N. On the Herpetology of the Grand Duchy of Baden. *Zool.* (3) xvi, 1892, pp. 15-19 & 211-222.
- DRASCH, —. Ueber die Giftdrüsen des Salamanders. *Verh. Anat. Ges.* 1892, pp. 244-253.
- DRECKMANN, F. A rare Snake (*Psammodphis longifrons*). *J. Bomb. N. H. Soc.* vii, 1892, pp. 406 & 407.
- DUGÈS, A. Descripcion del esqueleto del *Rhinophrynus dorsalis*, D. B. *Nat. Mex.* (2) ii, 1892, pp. 98 & 99, pl. v.
- . El *Dendrophidium dendrophis*, Schl. *T. c.* pp. 100 & 101, pl. v.
- EDINGER, L. Untersuchungen über die vergleichende Anatomie des Gehirns : 2. Das Zwischenhirn. Erster Teil : Das Zwischenhirn der Selachier und der Amphibien. *Abh. Senck. Ges.* xviii, 1892, 55 pp., 5 pls. Abstract in *An. Anz.* vii, 1892, pp. 472-476.
- EMERY, C. Ulteriori studi sullo scheletro della mano degli Anfibi Anuri. *Atti Acc. Pontif. Lincei* (5) i, 1892, *Rend.* pp. 203-206.
- ETHERIDGE, R., JUN. On Further Traces of *Meiolania* in New S. Wales. *Rec. Austral. Mus.* ii, 1893, pp. 39-41.
- EYCLESHYMER, A. C. The Development of the Optic Vesicles in Amphibia. *J. Morph.* viii, 1893, pp. 189-193, figs.
- . Paraphysis and Epiphysis in *Amblystoma*. *Anat. Anz.* vii, 1892, pp. 215-217.
- FARRINGTON, O. C. The Nephrostomes of *Rana*. *Tr. Conn. Ac.* viii, 1892, pp. 309-314, pl. xxiv.
- FEOKTISTOW, A. E. On the Physiology of the Rattle of *Crotalus durissus*. Translation. *Ann. N. H.* (6) xi, 1893, pp. 54-58.
- FERREIRA, J. B. Sobre o "Acanthodactylus" de Portugal. *J. Sci. Lisb.* (2) ii, 1892, pp. 188-194.
- . Sur l'existence du "*Triton palmatus*" (Schn.) en Portugal. *T. c.* pp. 195-198.
- . Revisão dos Reptis e Batrachios de Portugal. *T. c.* pp. 268-290.
- FICK, R. Ueber die Befruchtung des Axolotleies. Vorläufige Mitteilung. *Anat. Anz.* vii, 1892, pp. 818-821.
- FIELD, H. H. Ueber streng metamere Anlage der Niere bei Amphibien. *Verh. deutsch. Zool. Ges.* ii, 1892, pp. 113-117.
- FLETCHER, J. J. Contributions to a more exact knowledge of the Geographical Distribution of the Australian Batrachia. No. III. *P. Linn. Soc. N.S.W.* (2) vii, 1892, pp. 7-19.

- FRAAS, E. Ueber einen neuen Fund von *Ichthyosaurus* in Württemberg. JB. Mineral. 1892, ii, pp. 87-90, figs.
- . *Ichthyosaurus numismalis*, E. Fraas. JH. Ver. Württ. xlviii, 1892, pp. 22-31, pl. i.
- GAGE, S. P. A preliminary account of the brain of *Diemyctylus viridescens*, based upon sections made through the entire head. Abstract. P. Am. Ass. xli, 1892, p. 197.
- GARMAN, H. A Synopsis of the Reptiles and Amphibians of Illinois. Bull. Illin. Lab. N. H. iii, 1892, pp. 215-389, pls. ix-xv.
- GARMAN, S. The Reptiles of the Galapagos Islands. From the collections of Dr. Geo. Baur. Bull. Ess. Inst. xxiv, 1892, pp. 73-87.
- . On Reptiles collected by Dr. Geo. Baur near Guayaquil, Ecuador. T. c. pp. 88-95.
- . On *Cophias* and *Bachia*. T. c. pp. 96 & 97.
- . On Texas Reptiles collected by Mr. F. W. Wamsley for Professor J. W. P. Jenks. T. c. pp. 98-109.
- . The Reptilian Rattle. Science, xx, 1892, pp. 16 & 17, figs.
- GAUDRY, A. Les Pythonomorphes de France. C.R. cxv, 1892, pp. 303 & 304, and Mém. Soc. Géol. iii, 1892, No. 3, 13 pp., pls. i & ii.
- . *L'Ichthyosaurus burgundiae*. Bull. Soc. Autun, v, 1892, pp. 365-372, pl. xv.
- GAUPP, E. Grundzüge der Bildung und Umbildung des Primordialcraniums von *Rana fusca*. Verh. Anat. Ges. 1892, pp. 183-190.
- GIACOMINI, E. Contributo alla migliore conoscenza degli annessi fetali nei Rettili. Nota preventiva. Monit. Zool. Ital. iii, 1892, pp. 126-128, 157-164, & 185-196.
- GIRTANNER, A. Die Griechische Landschildkröte im Garten. Zool. Gart. xxxiii, 1892, pp. 349 & 350.
- GORJANOVIĆ-KRAMBERGER, C. *Aigialosaurus*, eine neue Eidechse aus den Kreideschiefern der Insel Lesina, mit Rücksicht auf die bereits beschriebenen Lacertiden von Comen und Lesina. Glasnik Nadar. Drustva, vii, 1892, pp. 74-106, pls. iii-iv. The same paper in Croatian, Rad jugoslav. akad. cix, 1892, pp. 96-123, pls. i & ii.
- GREENOUGH, H. S. Sur les homologues des premiers stades suivant la segmentation chez les Batraciens. Bull. Soc. Z. Fr. xvii, 1892, pp. 57-59.
- GREGORIO, A. DE. Sulla *Trionyx ragusensis*, De Greg., et la *T. melitensis*, Lydek. Nat. Sicil. xi, 1892, pp. 182 & 183.
- GRIESBACH, H. Ueber Plasmastructuren der Blutkörperchen im kreisenden Blute der Amphibien. Leuckart Festschrift, 1892, pp. 215-227, pl. xxiii.

- GÜNTHER, A. List of the Species of Reptiles and Fishes collected by Mr. A. E. Pratt on the Upper Yang-tze-Kiang and in the province Sze-chuen, with Description of the New Species. Appendix II to PRATT'S "Snows of Tibet" (London: 1892, 8vo), pp. 238-250, pls. i-iv.
- Report on a Collection of Reptiles and Batrachians transmitted by Mr. H. H. Johnston, C.B., from Nyassaland. P. Z. S. 1892, pp. 555-558, pl. xxxiii-xxxv (1893).
- HAHN, G. Les Axolotls et leur Métamorphose. Rev. Quest. Sci. (2) i, 1892, pp. 178-205.
- HALY, A. Essay on the Construction of Zoological Tables, with a Tabular Diagnosis of the Snakes of Ceylon. J. A. S. (Ceylon), xi, 1892, pp. 22-32, 183-232, figs.
- HARVIE-BROWN, J. A., & BUCKLEY, T. E. A Vertebrate Fauna of Argyll and the Inner Hebrides. Edinburgh: 1892, 8vo, 252 pp.
- HASSE, C. Die Entwicklung der Wirbelsäule von *Triton taeniatus*. Erste Abhandlung über die Entwicklung der Wirbelsäule. Z. wiss. Zool. liii (Suppl.) 1892, pp. 1-20, pls. i-iii.
- Die Entwicklung der Wirbelsäule der ungeschwänzten Amphibien. Zweite Abhandlung über die Entwicklung der Wirbelsäule. Z. wiss. Zool. lv, 1892, pp. 252-264, pl. xii.
- Allgemeine Bemerkungen über die Entwicklung und die Stammesgeschichte der Wirbelsäule. Anat. Anz. viii, 1893, pp. 288-289.
- HAY, O. P. On the Ejection of Blood from the Eyes of Horned Toads. P. U. S. Nat. Mus. xv, 1892, pp. 375-378.
- On the Breeding Habits, Eggs, and Young of certain Snakes. T. c. pp. 385-397.
- Description of a supposed new Species of *Storeria* from Florida, *Storeria victa*. Science, xix, 1892, p. 199.
- HEIDENHEIN, M. Notiz betreffend eine rudimentäre Drüse bei den Weibchen der einheimischen Tritonen. Anat. Anz. vii, 1892, pp. 432-435, figs.
- HERRERA, A. L. Sur le pleur de sang chez le *Batrachosoma asio*, Cope. Le Nat. xiv, 1892, p. 114.
- HERTWIG, O. Urmund und Spina bifida, eine vergleichend-morphologische, teratologische Studie an missgebildeten Froscheiern. Arch. mikr. Anat. xxxvii, 1892, pp. 353-503, pls. xvi-xx.
- HOCHSTETTER, F. Beiträge zur Entwicklungsgeschichte des Venensystems der Amnioten. II. Reptilien (*Lacerta*, *Tropidonotus*). Morph. JB. xix, 1892, pp. 428-501, pl. xv-xvii.
- HOFFMANN, C. K. Bijdrage tot de Kennis der Ontwikkelingsgeschiedenis van het Aderlijke Bloedvatenstelsel bij de Reptiliën. Verh. Ak. Amst. xxix, 1892, pp. 1-19, pls. i & ii.

- HOLLAND, W. J. A Nest Building Frog. *Am. Nat.* xxvii, 1893, pp. 67 & 68.
- HONNORAT-BASTIDE, E. F. Reptiles et Batraciens des Basses-Alpes. *C.R. Ass. Fr. Sci.* 1891, ii, pp. 583-586.
- HOUSSAY, F. Sur la circulation embryonnaire dans la tête chez l'Axolotl. *C.R.* cxv, 1892, pp. 132-135.
- HOWES, G. B. Notes upon the Shoulder Girdle of certain Dicynodontoid Reptiles. *J. Anat. Phys.* xxvi, 1892, pp. 403-405.
- HULKE, J. W. On the Shoulder Girdle in Ichthyosauria and Saurpterygia. *P. R. Soc.* lii, 1892, pp. 233-255, figs.
- JACK, R. L., & ETHERIDGE, R., JUN. The Geology and Palæontology of Queensland and New Guinea. Brisbane and London : 1892, 8vo, 768 pp.
- JORDAN, E. O., & EYCLESHYMER, A. C. The Cleavage of the Amphibian Ovum. *Anat. Anz.* vii, 1892, pp. 622-624.
- JUNGENSEN, H. F. E. Om Udviklingen af den Müllerske Gang (Æggelederen) hos Padderna. *Vid. Medd.* 1892 (1893), pp. 32-72, pls. ii & iii.
- KERMODE, P. M. C. Contributions to a Vertebrate Fauna of the Isle of Man. *Zool.* (3) xvii, 1893, pp. 64 & 65.
- KINGSLEY, J. S. The Head of an Embryo Amphiuma. *Am. Nat.* xxvi, 1892, pp. 671-680.
- KINKELIN, F. Ein fossiler Giftzahn. *Zool. Anz.* xv, 1892, pp. 93 & 94.
- KLAATSCH, H. Zur Morphologie der Mesenterialbildungen am Darmkanal der Wirbelthiere. i. Theil. Amphibien und Reptilien. *Morph. JB.* xviii, 1892, pp. 385-450, figs., pl. xii.
- KLINCKOWSTRÖM, A. DE. Le premier développement de l'oeil pinéal, l'epiphyse et le nerf pariétal chez *Iguana tuberculata*. *Anat. Anz.* viii, 1893, pp. 289-299, figs.
- KNAUTHE, K. Zur Biologie der Amphibien. *Zool. Anz.* xv, 1892, pp. 20-23.
- KÖNIG, A. Die Kriechthierfauna Tunesiens. *SB. niederrhein. Ges.* 1892, pp. 3-26.
- KÜKENTHAL, W. Zur Entwicklung des Handskelettes des Krokodils. *Morph. JB.* xix, 1892, pp. 42-55, pl. ii.
- . Ichthyosaurier und Wale. *JB. Mineral.* 1892, i, pp. 161-166.
- LATASTE, F. Etudes sur la faune Chilienne. i. Note sur les Lézards (Ordre des Sauriens). *Act. Soc. Sci. Chili*, i, 1892, pp. 7-40.
- . Le péritoine du Python de Séba, réponse aux critiques de M. Gérard W. Butler. *Op. cit.* ii, 1893, pp. clxvii-clxx.

- LEYDIG, F. Receptacula seminis der Urodelen. Zur Frage der Deutung. *Zool. Anz.* xv, 1892, pp. 309-312, 356.
- . Integument brünstiger Fische und Amphibien. *Biol. Centralbl.* xii, 1892, pp. 205-221.
- . Zum Integument niederer Wirbeltiere abermals. *T. c.* pp. 444-467.
- . Blaufarbiger Wasserfrosch; Leuchtflecken der Ellritze. *Zool. Gart.* xxxiii, 1892, pp. 1-7.
- LORTET, L. Les Reptiles fossiles du Bassin du Rhône. *Arch. Mus. Lyon*, v, 1892, pp. 1-139, figs., pls. i-xii.
- LOVISATO, D. Nuovi resti di coccodrilliano fossile nel miocene di Nurri. *Atti Acc. Lincei* (5) i, 1892, *Rend.*, pp. 436-439.
- LUCAS, A. H. S. Notes on the Distribution of Victorian Batrachians, with Descriptions of two new Species. *P. R. Soc. Vict.* (2) iv, 1892, pp. 59-64.
- LYDEKKER, R. On Part of the Pelvis of *Polacanthus*. *Q. J. Geol. Soc.* xlviii, 1892, pp. 148 & 149, figs.
- . Note on Two Dinosaurian Foot-bones from the Wealden. *T. c.* pp. 375 & 376, fig.
- . Recent Advances in Knowledge of the Ichthyosaurian Reptiles. *Nat. Sci.* i, 1892, pp. 514-521, figs.
- MACALLUM, A. B. Studies on the Blood of Amphibia. *Tr. Can. Inst.* ii, 1892, pp. 221-260, pl. i.
- MARSH, O. C. The Skull of *Torosaurus*. *Am. J. Sci.* (3) xliii, 1892, pp. 81-84, pls. ii & iii.
- . Notice of New Reptiles from the Laramie Formation. *T. c.* pp. 449-453, figs.
- . Notes on Triassic Dinosauria. *T. c.* pp. 543-546, pls. xv-xvii.
- . Notes on Mesozoic Vertebrate Fossils. *Op. cit.* xlv, 1892, pp. 171-176, pls. ii-v.
- . Restorations of *Claosaurus* and *Ceratosaurus*. *T. c.* pp. 343-349, pls. vi & vii.
- . The Skull and Brain of *Claosaurus*. *Op. cit.* xlv, 1893, pp. 83-86, pls. iv & v.
- . Restoration of *Anchisaurus*. *T. c.* pp. 169-170, pl. vi.
- MARSHALL, W. B. *Necturus maculatus* in the Hudson River. *Am. Nat.* xxvi, 1892, pp. 779 & 780.
- MARTIN, C. J. Observations on the Poisonous Constituents of the Venom of the Australian Black Snake (*Pseudechis porphyriacus*). *P. Linn. Soc. N.S.W.* (2) vii, 1892, pp. 319-322.

- [MARTIN, C. J.] The Venom of the Australian Black Snake (*Pseudechis porphyriacus*). J. R. Soc. N.S.W. xxvi, 1892, pp. 240-264.
- MARTIN, R. Sur l'habitat de la Couleuvre verte et jaune. Bull. Soc. Ouest France, ii, 1892, pp. 149 & 150.
- MARTIN, R., & ROLLINAT, R. Catalogue des Reptiles, Batraciens et Poissons du Département de l'Indre. Mém. Soc. Zool. v, 1892, pp. 30-45.
- MATSCHIE, P. Ueber eine kleine Sammlung von Säugethieren und Reptilien, welche Herr L. Conradt aus Usambara (Deutsch-Ostafrika) heimgebracht hat. SB. nat. Fr. 1892, pp. 101-110.
- MAURER, F. Haut-Sinnesorgane, Feder- und Haaranlagen, und deren gegenseitige Beziehungen, ein Beitrag zur Phylogenie der Säugethierhaare. Morph. JB. xviii, 1892, pp. 717-804, figs., pls. xxiv-xxvi.
- MAZZA, F. Caso di dicefalia derodimica in un *Anguis fragilis*. Atti Soc. Ligust. iii, 1892, pp. 256-261, pl. ii.
- MÉHELÿ, L. v. Magyarországi Barna Békák (*Rana fusca Hungarica*). Math. term. köz. xxv, 1892, pp. 1-63, pls. i-viii.
- . Beiträge zur Kenntniss der Bombinator-Arten sowie deren Standorte und Verbreitung in Ungarn. Math. Nat. Ber. Ung. x, 1892, pp. 55-79, pls. iv & v.
- . Die Herpetologischen Verhältnisse des siebenbürgischen Burzenlandes. Beiträge zu einer Monographie der k. freien Stadt Kronstadt. Kronstadt: 1892, 8vo, 91 pp.
- MEYER, A. Ueber das Vorderhirn einiger Reptilien. Z. wiss. Zool. lv, 1892, pp. 63-133, pls. iv & v.
- MEYER, A. B., & HELM, F. VI. Jahresbericht (1890) der Ornithologischen Beobachtungsstationen im Königreich Sachsen. Berlin: 1892, 4to, 135 pp.
- MINÀ-PALUMBO, F. Rettili ed Anfibi Nebrodensi (Continua). Nat. Sicil. xi, 1892, pp. 114-120, 239-252, and xii, 1892-93, pp. 52-56, 75-80, & 148-150.
- MINGAZZINI, P. L'Oolisi nella *Seps chalcides*. Atti Acc. Lincei (5) i, 1892, Rend., pp. 41-45.
- MITROPHANOPH, P. Researches on the development of Vertebrate Animals [Russian]. Trav. Soc. Varsovie, ii, 1892, 251 pp., 7 pls.
- MITSUKURI, K. On the Foetal Membranes of Chelonia. J. Coll. Sci. Japan, iv, 1891, pp. 1-53, pl. i-x.
- . Further Studies on the Formation of the Germinal Layers in Chelonia. Op. cit. v, 1892, pp. 35-52, pls. ii-iv.
- MOCQUARD, F. Voyage de M. Chaper à Bornéo. Nouvelle contribution à la faune herpétologique de Bornéo. Mém. Soc. Zool. v, 1892, pp. 190-206, pl. vii.

- [MOCQUARD, F.] Description de deux Ophidiens et d'un Batracien d'espèces nouvelles. Le Nat. xiv, 1892, p. 35.
- MÜLLER, F. Siebenter Nachtrag zum Katalog der herpetologischen Sammlung des Basler Museums. Festschr. 75. Best. Nat. Ges. Basel, 1892, pp. 195-215, pl. iii.
- NEGRI, A. Trionici eocenici ed oligocenici del Veneto. Mem. Soc. Ital. (3) viii, 1892, No. 7, 53 pp., 5 pls.
- NEWTON, E. T. On some new Reptiles from the Elgin Sandstone. (Abstract). P. R. Soc. lii, 1892, pp. 389-391.
- . Note on an Iguanodont Tooth. Geol. Mag. (3) ix, 1892, pp. 49 & 50, fig.
- NIEMANN, F. Beiträge zur Morphologie und Physiologie der Oberlippendrüsen einiger Ophidier. Arch. f. Nat. lviii, 1, 1892, pp. 262-286, pl. xiv.
- NORRIS, H. W. Studies on the Development of the Ear of *Amblystoma*. Part I. Development of the Auditory vesicle. J. Morph. vii, 1892, pp. 23-34, pls. iii & iv.
- OPPEL, A. Die Befruchtung des Reptilieneies. Arch. mikr. Anat. xxxix, 1892, pp. 215-290, pls. ix-xii.
- OSTROUMOFF, A. Zoologische Excursion nach Mangyschlak und Busatchi (Russian text). Protok. obsch. estest. Kazan, 1889-90, Append. No. 113 (1890), 16 pp.
- PARKER, W. N. Experiments on Respiration in Tadpoles of the Common Frog (*Rana temporaria*). Rep. Brit. Ass. 1891, p. 694.
- PERACCA, M. G. Descrizione di nuove specie di Rettili e Anfibi di Madagascar. Boll. Mus. Zool. Tor. vii, 1892, No. 112.
- PERRIN, A. Remarques sur le pied des Batraciens et des Sauriens. C.R. cxv, 1892, pp. 885-887.
- . Contribution à l'étude de la myologie comparée : Membre postérieur chez un certain nombre de Batraciens et de Sauriens. Bull. Sci. Fr. Belg. (4) iii, 1892, pp. 373-552, pls. xvi-xxiii.
- PIEL DE CHURCHEVILLE, H. & T. Note sur la présence du Tropidonote à collier, variété à deux raies, *Tropidonotus natrix*, var. *bilineata*, dans les environs de Nantes. Bull. Soc. Ouest France, ii, 1892, pp. 35-38, pl. ii.
- POHLIG, H. Altpermische Saurierfährten, Fische und Medusen der Gegend von Friedrichroda i. Thür. Leuckart Festschrift, 1892, pp. 59-64, figs., pl. vii.
- POSITANO-SPADA, D. Sulla identità specifica della *Lacerta muralis* e della *Lacerta serpa*. Boll. Soc. Rom. i, 1892, pp. 89-94.
- . Sopre una nuova varietà di *Lacerta muralis*. T. c. pp. 154-157, figs.

- QUELCH, J. J. Venom in Harmless Snakes. Zool. (3) xvii, 1893, pp. 30 & 31.
- REMY SAINT-LOUP, —. Sur une disposition intermédiaire à celles qui ont fait établir un caractère anatomique différentiel des Plagiotrèmes et des Hydrosauriens. CR. Soc. Biol. (9) iv, 1892, pp. 176-179, figs.
- RETZIUS, G. Die Nervenendigungen in dem Geschmacksorgan der Säugethiere und Amphibien. Biol. Unters. (2) iv, 1892, pp. 19-32, pls. vii-x.
- . Die Nervenendigungen in den Endknospen resp. Nervenhäügeln der Fische und Amphibien. T. c. pp. 33-36.
- . Ueber die sensiblen Nervenendigungen in den Epithelien bei den Wirbelthieren. T. c. pp. 37-44, pls. xi-xv.
- REX, H. Beiträge zur Morphologie der Hirnvenen der Amphibien. Morph. JB. xix, 1892, pp. 295-311, pl. xi.
- RÖSE, C. Ueber die Zahnleiste und die Eischwiele der Sauropsiden. Anat. Anz. vii, 1892, pp. 748-758, figs.
- . Ueber die Zahnentwicklung der Krokodile. Verh. Anat. Ges. 1892, pp. 225-227.
- ROUX, W. Ueber das entwickelungsmechanische Vermögen jeder der beiden ersten Furchungszellen des Eies. T. c. pp. 22-62.
- RUMPF, G. Aus dem Leben der griechischen Landschildkröte, *Testudo graeca*. Zool. Gart. xxxiii, 1892, pp. 260-264.
- SARASIN, P. & F. Ueber das Gehörorgan der Cæciliiden. Anat. Anz. vii, 1892, pp. 812-815.
- SCHARFF, R. F. Is the Frog a Native of Ireland? Irish Nat. i, 1893, pp. 1-6.
- SCHLAMPP, K. W. Das Auge des Grottenolmes (*Proteus anguineus*). Z. wiss. Zool. liii, 1892, pp. 537-557, pl. xxi.
- SCHULZE, E., & BORCHEDING, F. Fauna Saxonica. Amphibia et Reptilia. Verzeichniss der Lurche und Kriechtiere des Nordwestlichen Deutschlands. Jena : 1893, 8vo, 94 pp., figs.
- SCHULZE, F. E. Ueber die inneren Kiemen der Batrachierlarven. II. Mittheilung. Skelet, Musculatur, Blutgefässe, Filterapparat, Respiratorische Anhänge und Athmungsbewegungen erwachsener Larven von *Pelobates fuscus*. Abh. Ak. Berl. 1892, 66 pp., 6 pls.
- SCLATER, P. L. Remarks upon the habits of a South-African Snake (*Dasypeltis scabra*). P. Z. S. 1892, p. 476.
- SCLATER, W. L. List of the Batrachia in the Indian Museum. London : 1892, 8vo, 43 pp.
- . On some Specimens of Frogs in the Indian Museum, Calcutta, with Descriptions of several new Species. P. Z. S. 1892, pp. 341-348, pl. xxiv.

- SEELEY, H. G. Researches on the Structure, Organization and Classification of the Fossil Reptilia. VII. Further observations on *Pareiasaurus*. Phil. Tr. clxxxiii (B), 1892, pp. 311-370, figs., pls. xvii-xxiii.
- . The Nature of the Shoulder Girdle and Clavicular Arch in Sauropterygia. P. R. Soc. li, 1892, pp. 119-151, figs.
- . On the *Os pubis* of *Polacanthus foxii*. Q. J. Geol. Soc. xlviii, 1892, pp. 81-85, figs.
- . Contribution to a Knowledge of the Saurischia of Europe and Africa. T. c., Proc., pp. 188-191.
- . On a New Reptile from Welte Vreden (Beaufort West), *Eunotosaurus africanus* (Seeley). T. c. pp. 583-585, figs.
- . The Mesosauria of South Africa. T. c. pp. 586-604, pl. xviii.
- SEILLER, R. v. Die Zungendrüsen von *Lacerta*. Leuckart Festschrift, 1892, pp. 250-258, pls. xxv & xxvi.
- SIEBENROCK, F. Zur Kenntniss des Kopfskelettes der Scincoiden, Anguiden, und Gerrhosauriden. Ann. Hofmuseum Wien, vii, 1892, pp. 163-196, pls. i & ii.
- . Ueber Wirbelassimilation bei den Sauriern. T. c. pp. 373-378, figs.
- SKUPHOS, T. G. Vorläufige Mittheilung über *Parthanosaurus zitteli*, einen neuen Saurier aus der Trias. Zool. Anz. xvi, 1893, pp. 67-69.
- SLUITER, C. P. Das Jacobson'sche Organ von *Crocodylus porosus* (Schn.). Anat. Anz. vii, 1892, pp. 540-545, figs.
- SMIRNOW, A. E. Ueber die Nerven der Sehnen bei *Rana temporaria*, *R. esculenta*, und *Bufo vulgaris* (Russian text). Protok. obsch. estest. Kazan, 1889-90, Append. No. 112 (1890), 6 pp.
- STEINDACHNER, F. Ueber die typischen Exemplare von *Lacerta mosorensis*, Kolomb., 1886 (= *Lacerta koritana*, Tom., 1889). Ann. Hofmuseum Wien, vii, 1892, pp. 235-240, pl. xvi.
- . Ueber zwei noch unbeschriebene *Nototrema*-Arten aus Ecuador und Bolivia. Anz. Ak. Wien, 1892, pp. 175 & 176, and SB. Ak. Wien, ci, i, 1892, pp. 837-842, 2 pls.
- STEJNEGER, L. Preliminary Description of a new Genus and Species of Blind Cave Salamander from North America. P. U. S. Nat. Mus. xv, 1892, pp. 115-117, pl. ix.
- STRAHL, —. Die Rückbildung reifer Eierstockseier am Ovarium von *Lacerta agilis*. Verh. Anat. Ges. 1892, pp. 190-195.
- STRONG, O. S. The Structure and Homologies of the Cranial Nerves of the Amphibia, as determined by their Peripheral Distribution and Internal Origin. Part 2. Anat. Anz. vii, 1892, pp. 467-471.
- \*TAYLOR, W. E. Ophidia of Nebraska. Report of the Nebraska State Board of Agriculture, 1891.

- [TAYLOR, W. E.] Catalogue of the Snakes of Nebraska, with Notes on their Habits and Distribution. *Am. Nat.* xxvi, 1892, pp. 742-752.
- TEST, F. C. Fish-Cultural Investigations in Montana and Wyoming. Annotated List of Reptiles and Batrachians collected. *Bull. U. S. Fish Comm.* f. 1891, pp. 57-59 (1892).
- VAILLANT, L. Recherches biologiques faites à la Ménagerie des Reptiles (premier Article). Contribution à l'étude de l'alimentation chez les Ophidiens. *N. Arch. Mus.* (3) iv, 1892, pp. 221-234.
- . Remarques sur l'alimentation chez les Ophidiens. *C.R.* cxv, 1892, pp. 277-279.
- VERRILL, G. E. Notes on the Fauna of the Island of Dominica, British West Indies, with Lists of the Species obtained and observed by G. E. and A. H. Verrill. *Tr. Conn. Ac.* viii, 1892, pp. 315-355.
- VINCIGUERRA, D. Rettili e Batraci di Engavo raccolti dal Dott. Elio Modigliani. *Ann. Mus. Genov.* (2) xii, 1892, pp. 517-526.
- VIRCHOW, H. Das Dotterorgan der Wirbelthiere. *Z. wiss. Zool.* liii (Suppl.), 1892, pp. 161-206, pl. x.
- VÆLTZKOW, A. On the Oviposition and Embryonic Development of the Crocodile. Translation. *Ann. N. H.* (6) ix, 1892, pp. 66-72.
- WERNER, F. Untersuchungen über die Zeichnung der Wirbelthiere. *Zool. JB., Syst.* vi, 1892, pp. 155-229, pls. vi-x.
- . Zoologische Miscellen. II. Noch etwas über die Zeichnung der Tiere. III. Die Epitrichialsulptur der Schlangenepidermis. *Biol. Centralbl.* xii, 1892, pp. 272-280.
- . Herpetologische Nova. *Zool. Anz.* xvi, 1893, pp. 81-84.
- . Ausbeute einer herpetologischen Excursion nach Ost-Algerien. *Verh. z.-b. Wien*, xlii, 1892, pp. 350-355.
- . Tierleben in Ost-Algerien. *Zool. Gart.* xxxiii, 1892, pp. 264-273.
- . Biologische Notizen aus der Reptilienwelt. *T. c.* pp. 367-372.
- WERNER, H. Bemerkungen über den Scheltopusik und die Treppennatter. *T. c.* pp. 38-41.
- . Ueber die Lebensweise des Wüsten-Warans und der Hufeisennatter in Gefangenschaft. *T. c.* pp. 304-306, 374 & 375.
- WIEDERSHEIM, R. Das Gliedmassenskelet der Wirbelthiere, mit besonderer Berücksichtigung des Schulter- und Beckengürtels bei Fischen, Amphibien und Reptilien. Jena: 1892, 8vo, 266 pp., figs., 17 pls.
- . Die Phylogenie der Beutelknochen. Eine entwicklungsgeschichtlich-vergleichend anatomische Studie. *Z. wiss. Zool.* liii (Suppl.) 1892, pp. 43-66, pls. vi & vii.

- WILDER, H. H. Die Nasengegend von *Menopoma alleghaniense* und *Amphiuma tridactylum*, nebst Bemerkungen über die Morphologie des Ramus ophthalmicus profundus trigemini. Morph. JB. v, 1892, pp. 155-176, pls. xii & xiii.
- WILL, L. Beiträge zur Entwicklungsgeschichte der Reptilien. 1. Die Anlage der Keimblätter beim Gecko (*Platydictylus facetanus*, Schreib.). *Op. cit.* vi, 1892, pp. 1-160, figs., pls. i-xi.
- . Zur Kenntniss der Schildkröten-Gastrula. Biol. Centralbl. xii, 1892, pp. 182-192, figs.
- WILLISTON, S. W. Kansas Pterodactyls. Kansas Quart. i, 1892, pp. 1-13, pl. i.
- & CASE, E. C. Kansas Mosasaurs. *T. c.* pp. 15-32, pls. ii-vi.
- WITCHELL, C. A., & STRUGNELL, W. B. The Fauna and Flora of Gloucestershire. Stroud: 1892, 8vo, 301 pp.
- ZIEGLER, F. Zur Kenntniss der Oberflächenbilder bei *Rana*-Embryonen. Anat. Anz. vii, 1892, pp. 211-215, figs.

## II.—WORKS AND PAPERS DEALING WITH BOTH REPTILES AND BATRACHIANS.

O. BETTGER & PECHUEL-LOESCHE have prepared the seventh volume, dealing with the Reptiles and Batrachians, of the third revised edition of BREHM's Tierleben (Leipzig & Vienna: 1892).

Remarks on phylogeny of the Reptiles and Batrachians; E. D. COPE, *P. Am. Phil. Soc.* xxx, 1892, pp. 278-280.

Development and phylogeny of the vertebral column; C. HASSE, *Anat. Anz.* viii, 1893, pp. 288 & 289, summarises his views on this. He traces two phyla: one embracing the Ganoids, Teleostei, Tailless Batrachians, and Amniota; the other the Selachians, Dipnoi, and Tailed Batrachians.

The morphology of the vertebral column and ribs, by L. DOLLO, *Bull. Sci. Fr. Belg.* xxiv, 1892 [quoted from separate copies].

R. WIEDERSHEIM's book, "Das Gliedmasenskelet der Wirbelthiere" (see p. 15), deals chiefly with the pectoral and pelvic arches and limbs of Reptiles and Batrachians.

Phylogeny of the marsupial bones of Mammals. R. WIEDERSHEIM, *à propos* of this, enters into details on the morphology of the pelvis in Reptiles and Batrachians; *Z. wiss. Zool.* liii (Suppl.), 1892, pp. 1-20, pls. i-iii.

Myology of the hind limb in Lizards and Batrachians; A. PERRIN, *C.R. cxv*, 1892, pp. 885-887, and *Bull. Sci. Fr. Belg.* (4) iii, 1892, pp. 373-552, has a contribution on.

On the nerve-terminations in the skin of Reptiles and Batrachians. G. RETZIUS, *Biol. Unters.* (2) iv, 1892, pp. 19-44, pls. vii-xv.

Copulatory organs in the various groups of Reptiles and Batrachians ; REMY SAINT-LOUP, C.R. Soc. Biol. (9) iv, 1892, pp. 176-179, figs., remarks on the difference in these.

Morphology of the vertebrate ear ; H. AYERS, J. Morph. vi, 1892, pp. 1-360, pls. i-xii.

Morphology of the peritoneum in Reptiles and Batrachians ; H. KLAATSCH, Morph. JB. xviii, 1892, pp. 385-450, figs., pl. xii.

Markings of Reptiles and Batrachians ; F. WERNER, Zool. JB., Syst. vi, 1892, pp. 155-229, pls. vi-x, deals with their signification.

Seventh supplement to his Catalogue of the Herpetological Collection in the Basle Museum ; F. MÜLLER, Festschr. Nat. Ges. Basel, 1892, pp. 195-215, pl. iii.

### III.—FAUNÆ.

#### A.—RECENT.

##### EUROPE.

European Batrachians ; G. A. BOULENGER, P. Z. S. 1892, pp. 593-627, pls. xlv-xlvii, describes and figures the Tadpoles.

Isle of Man ; KERMODE, Zool. (3) xvii, 1893, pp. 64 & 65.

"Vertebrate Fauna of Argyll and Inner Hebrides" (Edinburgh : 1892, 8vo) ; J. A. HARVIE-BROWN & T. E. BUCKLEY devote pp. 216-218 to the Reptiles and Batrachians.

"Vertebrate Fauna of Lakeland" (Edinburgh : 1892, 8vo) ; H. A. MACPHERSON, pp. 461-465, deals with the Reptiles and Batrachians.

"Fauna and Flora of Gloucestershire" (Stroud : 1892, 8vo) ; C. A. WITCHELL & W. B. STRUGNELL, Reptilia and Amphibia, pp. 124-148, figs.

Department Indre, France : R. MARTIN & R. ROLLINAT, Mém. Soc. Zool. v, 1892, pp. 30-38, enumerate the Reptiles and Batrachians of.

Department Basses Alpes : E. F. HONNORAT-BASTIDE, CR. Ass. Fr. Sci. 1891, ii, pp. 583-586, remarks on the herpetological fauna of the.

France and Germany : J. DE BEDRIAGA, CR. Congrès. Internat. Zool. i, 1892, p. 244, draws attention to some recent introductions of foreign Reptiles and Batrachians.

N. W. Germany : ERWIN SCHULZE & F. BORCHERDING publish a catalogue of the Reptiles and Batrachians of ; Jena : 1893, 8vo, 94 pp., figs.

Grand Duchy of Baden : G. N. DOUGLASS concludes his Herpetology of ; Zool. (3) xvi, 1892, pp. 15-19 & 211-222.

Kronstadt, Transylvania : L. VON MÉHELÿ, in Beiträge zu einer Monographie der k. freien Stadt Kronstadt (Kronstadt : 1892, 8vo), contributes an article (91 pp.) on the Herpetology of the environs of.

Portugal : J. BETTENCOURT FERREIRA, J. Sci. Lisb. (2) ii, 1892, pp. 268-290, list of the Reptiles and Batrachians.

Province of Rome : A. CARUCCIO, Boll. Soc. Rom. i, 1892, pp. 39-57, describes the harmless Snakes.

Sicily : F. MINÀ-PALUMBO, *Nat. Sicil.* xi, 1892, pp. 114-120, 239-252, and xii, 1892-3, pp. 52-56, 75-80, 148-150, articles on the Herpetology of.

## ASIA.

Caucasus District : O. BÆTTGER, *Ber. Senck. Ges.* 1892, pp. 131-150, has notes on Reptiles and Batrachians.

Mangyschlag and Busatschi : A. OSTROUMOFF, *Protok. obsch. estest. Kazan.* 1889-90, *Append. No.* 113 (1890), gives an account, in Russian, of a zoological excursion.

Transcaspiian Reptiles : G. A. BOULENGER, *P. Z. S.* 1891, pp. 622-633, has notes on.

Aden : O. BÆTTGER, *Ber. Offenb. Ver.* xxix-xxxii, 1892, pp. 61-63, records some Reptiles from.

Upper Yaug-tse-kiang and Sze-Chuen : A. GÜNTHER gives a list of the Reptiles and Batrachians collected by Mr. A. E. Pratt, *Appendix ii* to PRATT'S "Snows of Tibet" (London : 1892, 8vo), pp. 238-242, pl. i.

Great Loo Choo I. : G. A. BOULENGER, *Ann. N. H.* (6) x, 1892, pp. 302-304, remarks on a collection of Reptiles and Batrachians made by Mr. Holst.

India and Ceylon, Salanga I. in Siam, Camboja, Sumatra, and Java : O. BÆTTGER, *Ber. Offenb. Ver.* xxix-xxxii, 1892, pp. 65-145, reports on collections from.

India and Burma : W. L. SCLATER, *P. Z. S.* 1892, pp. 341-348, pl. xxiv, has notes on the Frogs preserved in the Calcutta Museum.

Ceylon : A. HALY, *J. A. S. (Ceylon)* xi, 1892, pp. 22-32 & 183-232, table for the identification of the Snakes.

Engano I., S. E. of Sumatra : D. VINCIGUERRA, *Ann. Mus. Genov.* (2) xii, 1892, pp. 517-526, reported on the Reptiles and Batrachians collected by Modigliani.

Borneo : F. MOCQUARD, *Mém. Soc. Zool.* v, 1892, pp. 190-206, pl. vii, reports on a collection of Reptiles and Batrachians from W. Borneo, and also remarks on some of the specimens previously described by himself. G. A. BOULENGER, *P. Z. S.* 1892, pp. 505-508, pls. xxix & xxx, reports on the Reptiles and Batrachians collected by Mr. C. Hose on Mt. Dulit.

## AFRICA.

Algeria and Tunisia : J. ANDERSON, *P. Z. S.* 1892, pp. 11-24, list of Reptiles and Batrachians, with notes.

Algeria : F. WERNER, *Verh. z.-b. Wien.* xlii, 1892, pp. 350-355, and *Zool. Gart.* xxxiii, 1892, pp. 264-273, has notes on the Reptiles and Batrachians collected by himself.

Tunisia : A. KÖNIG, *SB. niederrhein. Ges.* 1892, pp. 3-26, enumerates, with notes, the Reptiles and Batrachians collected by himself.

Portuguese Guinea : J. V. BARBOZA DU BOCAGE, *J. Sci. Lisb.* (2) ii, 1892, pp. 183 & 184, enumerates the Reptiles.

Is. of the Gulf of Guinea : J. DE BEDRIAGA, O Istituto, ser. 2, Nos. 6 & 7, 1892, describes the Reptiles and Batrachians obtained by A. F. Moller in the ; remarks by J. V. BARBOZA DU BOCAGE, J. Sci. Lisb. (2) ii, 1892, pp. 229-232.

Congo : D. A. DEL PRATO, in a separately published pamphlet (Parma : 1893, 8vo, 14 pp.), gives a list of Reptiles.

Usambara, German East Africa : P. MATSCHIE, SB. nat. Fr. 1892, pp. 102-110, reports on a small collection of Reptiles and Batrachians.

Nyassaland : A. GÜNTHER, P. Z. S. 1892, pp. 555-558, pls. xxxiii-xxxv (1893), reports on a collection of Reptiles and Batrachians.

Transvaal : G. A. BOULENGER gives a list of the Reptiles and Batrachians obtained by W. L. Distant, Appendix to Distant's "Naturalist in the Transvaal" (London : 1892, 8vo), pp. 174-176, fig.

Madagascar : M. G. PERACCA, Boll. Mus. Zool. Tor. vii, 1892, No. 112, describes two new Snakes and a new Frog.

#### AMERICA.

North America : E. D. COPE, P. U. S. Nat. Mus. xiv, 1892, pp. 589-694, critical review of the characters and variations of the Snakes.

Nebraska : W. E. TAYLOR, Catalogues of the Snakes, with notes on their habits and distribution ; Report of the Nebraska State Board of Agriculture, 1891, and Am. Nat. xxvi, 1892, pp. 742-752.

Montana and Wyoming : F. C. TEST, Bull. U. S. Fish. Comm. 1891, pp. 57-59 (1892), remarks on some Reptiles and Batrachians.

Illinois : H. GARMAN, Bull. Illin. Lab. N. H. iii, 1892, pp. 215-389, pls. ix-xv, synopsis of the Reptiles and Batrachians.

Texas : S. GARMAN, Bull. Ess. Inst. xxiv, 1892, pp. 98-109, reports on a collection of Reptiles.

North Western Texas : E. D. COPE, P. Ac. Philad. 1892, pp. 331-337, list of Reptiles and Batrachians.

Dominica, West Indies : G. E. VERRILL, Tr. Conn. Ac. viii, 1892, pp. 350-352 & 355.

Galapagos and Guayaquil : S. GARMAN, Bull. Ess. Inst. xxiv, 1892, pp. 73-95, reports on the Reptiles obtained by G. Baur.

Chili : F. LATASTE, Actes Soc. Sci. Chili, i, 1892, pp. 7-40, publishes a revision of the *Lacertilia*, minus the genus *Liolaemus*.

#### PAPUASIA AND AUSTRALIA.

Ceram, Amboyna, Barda, and New Guinea : O. BETTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, annotated list of Reptiles and Batrachians.

British New Guinea : C. W. DE VIS, Ann. Queensland Mus. i, 1892, No. 2, pp. 11 & 12, enumerates some Reptiles.

Australia : J. J. FLETCHER, P. Linn. Soc. N.S.W. (2) vii, 1892, pp. 7-19, publishes a third contribution to a more exact knowledge of the geographical distribution of the Batrachia.

Victoria : A. H. S. LUCAS, P. R. Soc. Vict. (2) iv, 1892, pp. 59-64, has notes on the distribution of Victorian Batrachians.

### B.—FOSSIL.

Rhone Basin : L. LORTET, Arch. Mus. Lyon, v, 1892, pp. 1-139, figs., pls. i-xii, monographs the fossil Reptiles and Batrachians. Critical remarks on some of the Lizards and Rhynchocephalians are made by G. A. BOULENGER, Ann. N. H. (6) xi, 1893, pp. 204-210.

United States : O. C. MARSH, Am. J. Sci. (3) xliii, 1892, pp. 449-453, figs., and xlv, 1892, pp. 171-176, pls. ii-v, describes various Reptilian remains from the Laramie formation.

Texas : E. D. COPE, P. Am. Phil. Soc. xx, 1892, pp. 123-131, describes fossil Reptiles.

Parana : J. B. AMBROSETTI, Bol. Ac. Cordoba, x, 1890, pp. 409-426, describes fossil Oligocene Reptiles.

Queensland : R. L. JACK & R. ETHERIDGE, JUN., Geol. and Pal. Queensland and New Guinea (Brisbane and London : 1892, 8vo), pp. 648-653, enumerate the fossil Reptiles.

## IV.—REFERENCES, ARRANGED SYSTEMATICALLY.

### REPTILIA.

H. G. SEELEY, dealing with the systematic position of *Pariosaurus*, expresses his views on the relations of the various groups of Reptilia. The Labyrinthodonts are referred to this class. Phil. Tr. clxxxiii (B), 1892, pp. 367 & 368.

E. D. COPE, Tr. Am. Phil. Soc. xvii, 1892, pp. 11-26, pls. i-v, discusses the homologies of the posterior cranial arches in the Reptilia. The author admits as probable Baur's hypothesis, which supposes the bars to have been derived from a roofed skull by perforation. The elements usually termed quadratojugal, squamoral, and supratemporal, are respectively named zygomatic, supratemporal, and supra-mastoid. The paper concludes with systematic considerations which do not differ materially from the views expressed by the same author in 1885.

J. W. HULKE, P. R. Soc. lii, 1892, pp. 233-255, figs., discusses the homology of the various elements in the Reptilian shoulder-girdle.

A. MEYER, Z. wiss. Zool. lv, 1892, pp. 63-133, pls. iv & v, writes on the brain of Reptiles.

E. BÉRANEK, Anat. Anz. vii, 1892, pp. 674-689, figs., writes on the pineal eye and its nerve.

A. DE KLINCKOWSTRÖM, Anat. Anz. viii, 1893, pp. 289-299, figs., studies the early development of the pineal eye, the epiphysis, and the parietal nerve in *Iguana*.

- F. MAURER, *Morph. JB.* xviii, 1892, pp. 739-747, remarks on the formation and structure of scales in the Reptiles.
- C. RÖSE, *Anat. Anz.* vii, 1892, pp. 748-758, figs., writes on the development of teeth and egg-tooth in Reptiles.
- C. K. HOFFMANN, *Verh. Ak. Amst.* xxix, 1892, pp. 1-19, pls. i & ii, writes on the development of the venous system in Reptiles.
- F. HOCHSTETTER, *Morph. JB.* xix, 1892, pp. 428-501, pls. xv-xvii, contributes to the knowledge of the development of the venous system in Reptiles, his researches being chiefly based on *Lacerta* and *Tropidonotus*.
- E. GIACOMINI has preliminary notes on the foetal membranes of Reptiles; *Mon. Zool. Ital.* iii, 1892, pp. 126-128, 157-164, & 185-196.
- II. VIRCHOW, *Z. wiss. Zool.* liii (Suppl.), 1892, pp. 170-206, pl. x, deals specially with the vitelline sac of Reptiles.
- A. OPPEL, *Arch. mikr. Anat.* xxxix, 1892, pp. 215-290, pls. ix-xii, deals with the fecundation of the egg in *Anguis fragilis* and *Tropidonotus natrix*.
- C. BENDA, *Verh. Anat. Ges.* 1892, pp. 195-199, writes on the histogenesis of the Sauropidan spermatozoon.
- F. WERNER, *Biol. Centralbl.* xii, 1892, pp. 272-277, offers further remarks on the markings of Reptiles.
- F. WERNER, *Zool. Gart.* xxxiii, 1892, pp. 367-372, has biological notes on various Reptiles.

## SQUAMATA.

## LACERTILIA.

- E. D. COPE, *P. Am. Phil. Soc.* xxx, 1892, pp. 185-221, pls. ii-vi, writes on the osteology of the Lacertilia, and *J. Morph.* vii, 1892, pp. 223-244, pl. xiii, on degenerative types of scapular and pelvic arches in the Lacertilia.
- F. SIEBENROCK, *Ann. Hofmuseum Wien*, vii, 1892, pp. 163-196, pls. i & ii, makes a comparative study of the skulls in the principal genera of *Scincidae*, *Anguidae*, and *Gerrhosauridae*. The same author, *t. c.* pp. 373-378, writes on the sacrum of Lacertilia.
- R. v. SEILLER, *Leuckart Festschrift*, 1892, pp. 250-258, pls. xxv & xxvi, writes on the lingual glands of *Lacerta*.
- G. CHIARUGI, *Monit. Zool. Ital.* iii, 1892, pp. 211 & 212, and *Arch. Ital. Biol.* xviii, 1893, pp. 363 & 364, has a preliminary note on the development of the olfactory nerve in *Lacerta muralis*.
- L. WILL, *Morph. JB.*, *Anat.* vi, 1892, pp. 1-160, figs., pls. i-xi, deals with the embryology of *Tarentola mauritanica*, L.
- P. MINGAZZINI, *Atti Acc. Lincei* (5) i, 1892, *Rend.* pp. 41-45, has a note on the gestation in *Chalcides tridactylus*.
- STRAHL, *Verh. Anat. Ges.* 1892, pp. 190-195, remarks on retrogression of ripe ovarian eggs in *Lacerta agilis*.

## GECKONIDÆ.

- Teratoscincus scincus*, Schleg. : note on Transcaspiian specimens ; BOULENGER, P. Z. S. 1891, p. 629.
- Gymnodactylus caspius*, Eichw., and *G. fedtschenkoi*, Strauch : notes by BOULENGER, t. c. pp. 629 & 630. *G. louisianensis*, n. sp., DE VIS, Ann. Queensland Mus. i, 1892, No. 2, p. 11, Sudest I., British New Guinea. *G. sphyrurus*, p. 6, New South Wales, and *cornutus*, p. 8, N. E. Queensland, n. spp., DOUGLAS-OGILBY, Rec. Austral. Mus. ii, 1892.
- Gonatodes collaris*, n. sp., GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 83, Chatham I., Galapagos.
- Diplodactylus intermedius*, n. sp., DOUGLAS-OGILBY, t. c. p. 10, Interior of New South Wales.
- Phyllodactylus galapagensis*, Ptrs. : notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 81. *P. baurii*, n. sp., *id.* t. c. p. 82, Charles I., Galapagos.
- Ptyodactylus lacazii*, n. sp., BOUTAN, Arch. Z. expér. (2) x, 1892, p. 17, N. W. Arabia [= *P. lobatus*, L.—REC.].
- Hemidactylus mabouia*, Mor. : on variations in the femoral pores ; BOCAGE, J. Sci. Lisb. (2) ii, 1892, p. 221 : n. var *molleri* ; BEDRIAGA, O Istituto (Coimbra), xxxix, 1892 (p. 19 of reprint), S. Thomé, Gulf of Guinea. *H. greeffii*, Bocage : remarks, *id. ibid.* p. 16.
- Lygodactylus conradti*, n. sp., MATSCHIE, SB. nat. Fr. 1892, p. 109, Usambara, German E. Africa. *L. angularis*, n. sp., GÜNTHER, P. Z. S. 1892, p. 555, pl. xxxiii, fig. 1 (1893), Nyassaland.
- Ptychozoon horsfieldii*, Gray, described and figured by F. MÜLLER, Festschr. Nat. Ges. Basel, 1892, p. 209, pl. iv.

## AGAMIDÆ.

- Draco modiglianii*, n. sp., VINCIGUERRA, Ann. Mus. Genov. (2) xii, 1892, p. 523, Engano I.
- Gonyocephalus beyschlagi*, n. sp., BËTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 104, N. E. Sumatra.

## IGUANIDÆ.

- Iguana tuberculata*, L. : on a specimen with reproduced, striped tail ; BOULENGER, P. Z. S. 1891, p. 466.
- Conolophus subcristatus*, Gray, and *Amblyrhynchus cristatus*, Bell : notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, pp. 77 & 79. The same author, Science, xx, 1892, p. 16, fig., remarks on the dorsal crest of *Conolophus subcristatus*, each of the spines of which resembles externally the rattle of a small rattlesnake.

*Tropidurus*, Wgm. : G. BAUR, Leuckart Festschrift, 1892, pp. 259-277, figs., describes the variations of the Lizards of this genus in the Galapagos Is. *T. barringtonensis*, p. 268, and *jacobii*, p. 269, n. spp., *id. ibid.* *T. bocourti*, Bigr., = *T. occipitalis*, Ptrs. ; GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 94.

*Phrynosoma*, Wgm. : on the ejection of blood from the eyes ; O. P. HAY, P. U. S. Nat. Mus. xv, 1892, p. 375 ; A. L. HERRERA, Le Nat. xiv, 1892, p. 114.

*Iguanavus teres*, n. sp. (foss.), MARSH, Am. J. Sci. (3) xliii, 1892, p. 451, Laramie formation, Wyoming.

## ANGUIDÆ.

*Ophisaurus apus*, Pall. : notes on habits ; H. WERNER, Zool. Gart. xxxiii, 1892, p. 38.

*Anguis fragilis*, L. : on a dicephalous monster ; MAZZA, Atti Soc. Ligust. iii, 1892, p. 256, pl. ii.

## VARANIDÆ.

*Varanus griseus*, Daud. : on its habits in confinement ; H. WERNER, Zool. Gart. xxxiii, 1892, pp. 304 & 374. *V. heteropholis*, n. sp., BOULENGER, P. Z. S. 1892, p. 506, pl. xxix, Mt. Dulit, Borneo.

## TEIIDÆ.

*Ameiva pleii*, n. var. *brachiosquamatus*, COPE, in VERRILL, Tr. Conn. Ac. viii, 1892, p. 352, Dominica, W. Indies [= ? *A. fuscata*, Garm.—REC.]

*Tiaporus*, n. g., like *Ameiva*, but without femoral pores. *T. fuliginosus*, n. sp., COPE, P. Am. Phil. Soc. xx, 1892, p. 132, pl. —, Swan I., off N. E. Coast of Honduras.

*Cnemidophorus*, Wagl. : synopsis of the species, by COPE, Tr. Am. Phil. Soc. xvii, 1892, p. 27, pls. vi-xiii. *C. tessellatus*, *rubidus*, and *multiscutatus*, pp. 36 & 37, Lower California, *C. gularis scalaris*, p. 47, Chihuahua, N. Mexico, *sericeus*, p. 48, Texas, and *semifasciatus*, p. 49, Chihuahua, n. subsp., *id. ibid.* *C. variolosus*, p. 39, Coahuila, and *septemvittatus*, p. 40, California, n. spp., *id. ibid.* *C. lentiginosus*, n. sp., GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 92, Guayaquil, Ecuador.

*Propodinema*, n. g. for *Podinema paranensis*, Scalabrini (foss.), AMBROSETTI, Bol. Ac. Cordoba, x, 1890, p. 410. *P. oligocena*, n. sp. (foss.), *id. t. c.* p. 413, Oligocene, Parana.

*Chamops*, n. g. for a Lacertilian maxillary. *C. segnis*, n. sp. (foss.), MARSH, Am. J. Sci. (3) xliii, 1892, p. 450, fig., Laramie formation of Wyoming [apparently nearest to the *Teiide*.—REC.].

*Bachia*, Gray, 1845 [not 1849, as stated] should supersede *Cophias*, Fitz., 1826, *nec* Merr., 1820 ; GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 96.

## LACERTIDÆ.

- Lacerta muralis*, Laur. : notes on Italian specimens ; POSITANO-SPADA, Boll. Soc. Rom. i, 1892, p. 89 : n. var. *multifasciata*, *id. t. c.* p. 154, fig., Italy. *L. muralis*, vars. *depressa*, Camer., and *difilippii*, Camer. : notes by BÆTTGER, Ber. Senck. Ges. 1892, pp. 140 & 144 : n. vars. *raddei*, p. 142, and *valentini*, p. 145, Caucasus. *L. mosorensis*, Kolomb. (= *koritana*, Tom.), redescribed and figured by STEINDACHNER, Ann. Hofmuseum Wien, vii, 1892, p. 235, pl. xvi.
- Acanthodactylus vulgaris*, D. & B. : remarks on Portuguese specimens ; FERREIRA, J. Sci. Lisb. (2) ii, 1892, p. 188.
- Holaspis guentheri*, Gray, recorded from East Africa by MATSCHIE, SB. nat. Fr. 1892, p. 110.

## SCINCIDÆ.

- E. D. COPE, J. Morph. vii, 1892, p. 233, gives a synopsis of the genera of *Scincide*, in which the following new generic names are introduced :—*Monophyaspsis*, *Oncopus*, *Ollochirus*, *Tridentulus*, *Furcillus*, *Haploscincus*, *Dimeropus*, *Dicloniscus*, *Mesomycterus*.
- Lygosoma africanum*, Gray, redescribed by BEDRIAGA, O Istituto (Coimbra), xxxix, 1892 (p. 23 of reprint). *L. travancoricum*, Bedd., n. var., *palnica* ; BÆTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 72, Pulney Hills, S. India. *L. (Siaphos) relictum*, n. sp., VINGUERRA, Ann. Mus. Genov. (2) xii, 1892, p. 524, Engano I.
- Mococa cœruleocauda*, n. sp., DE VIS, Ann. Queensland Mus. i, 1892, No. 2, p. 12, Sudest I., British New Guinea.
- Eumeces scutatus*, Theob. : note on Transcaspian specimens ; BOULENGER, P. Z. S. 1891, p. 630.
- Ophiomorus brevipes*, Blanf. : note on Transcaspian specimens ; BOULENGER, *t. c.* p. 631.
- Chalcides simonyi*, Stdr., is regarded as a variety of *C. viridanus*, Gravh., by BOULENGER, Ann. N. H. (6) ix, 1892, p. 74 : note by BEDRIAGA, C.R. Congrès Internat. Zool. i, 1892, p. 242. *C. boulengeri*, n. sp., ANDERSON, P. Z. S. 1892, p. 17, pl. i, fig. 1, Duiyat, Tunisia.

## INCERTÆ SEDIS.

- Euposaurus*, n. g. (Jourdan MS.) for small fossil Lizards, which are referred to the Rhynchocephalians ; LORTET, Arch. Mus. Lyon, v, 1892, p. 73. These fossils are regarded by the Recorder as Lacertilian ; Ann. N. H. (6) xi, 1893, p. 208. *E. thiollieri*, p. 73, pl. vi, figs. 7-10, and *cerinensis*, p. 75, figs., n. spp., LORTET, *t. c.*, Jurassie, Cerin, France.

## RHIPTOGLOSSA.

G. A. BOULENGER, Ann. N. H. (6) ix, 1892, p. 72, remarks on some newly-discovered E. African Chameleons, regarding *Chamæleon höhnelii*, Stdr., and *C. leikipiensis*, Stdr., as identical with *C. biteniatus*, Fisch., and *C. abbotti*, Stejn., as identical with *C. tivetensis*, Stdr. The female of the latter species is described.

*Chamæleon fischeri*, Reich. : note by MATSCHIE, SB. nat. Fr. 1892, p. 102. *C. deremensis*, p. 103, *spinosus*, p. 105, and *tenuis*, p. 106, n. spp., *id. ibid.*, Usambara, German E. Africa. *C. isabellinus*, n. sp., GÜNTHER, P. Z. S. 1892, p. 556, pl. xxxiii, fig. 2 (1893), Nyassaland [= *C. dilepis*, Leach.—REC.] *C. (Brookesia) brevicaudatus*, p. 107, and *temporalis*, p. 108, n. spp., MATSCHIE, *t. c.*, Usambara, German E. Africa.

*Rhampholeon platyceps*, p. 556, pl. xxxiv, fig. 1, and *brachyurus*, p. 557, pl. xxxiv, fig. 2, n. spp., GÜNTHER, *t. c.* Nyassaland.

## DOLICHOSAURIA.

C. GORJANOVIĆ-KRAMBERGER, Glasnik Nadar. Drustva, vii, 1892, pp. 74–106, pls. iii & iv, and Rad jugoslav. akad. eix, 1892, pp. 96–123, pls. i & ii, discusses the relations of this group of Reptiles, for which he proposes the name *Ophiosauria*.

*Aigialosaurus*, n. g. for *A. dalmaticus*, n. sp. (foss.), C. GORJANOVIĆ-KRAMBERGER, *ibid.*, Chalk of Lesina I., Dalmatia.

*Pontosaurus*, n. g. for *Hydrosaurus lesinensis*, Kornh. (foss.) C. GORJANOVIĆ-KRAMBERGER, *ibid.*

Remarks by BOULENGER, Ann. N. H. (6) xi, 1893, pp. 204–207.

## PYTHONOMORPHA.

G. BAUR, J. Morph. vii, 1892, pp. 1–22, reviews the history of our knowledge of the Mosasauroid skull, and discusses the systematic position of the *Mosasauridae*.

A. GAUDRY, Mém. Soc. Géol. iii, No. 3, 1892, 13 pp., 2 pls., describes the remains of Mosasaurs hitherto found in France, which are referred to *Liodon anceps*, Ow., *L. compressidens*, Gaudry, *L. mosasauroides*, Gaudry, and *Mosasaurus*, sp.

*Liodon mosasauroides* and *compressidens*, n. spp., GAUDRY, CR. cxv, 1892, p. 304, Chalk, Pau and Sens, France.

*Clidastes velox*, Marsh : description of a nearly complete specimen, with figures of the pectoral and pelvic arches; WILLISTON & CASE, Kansas Quart. i, 1892, p. 17, pls. ii & iii. *C. westii*, n. sp., *id.*, *t. c.* p. 29, pls. iv & v, Cretaceous of Kansas.

*Platecarpus coryphæus*, Cope : on the skull; BAUR, J. Morph. vii, 1892, p. 1, pls. i & ii.

## OPHIDIA.

BOULENGER, G. A. Catalogue of the Snakes in the British Museum (Natural History). Vol. i, containing the families *Typhlopidae*, *Glauconiidae*, *Boidae*, *Ilysiidae*, *Uropeltidae*, *Xenopeltidae*, and *Colubridae Aglyphe*, part. London: 1893, 8vo, xiii, 448 pp., 28 pls.

The classification adopted is the same as proposed by the Recorder in 1890. This volume contains descriptions of 523 species, and the enumeration of 3324 specimens.

- G. B. BUTLER, P. Z. S. 1892, pp. 477-498, pl. xxviii, deals with the subdivision of the body-cavity in Snakes.
- F. LATASTE, Act. Soc. Sci. Chili, ii, 1893, pp. clxvii-clxx, replies to some criticisms of his own work made by the author of the above paper.
- F. WERNER, Biol. Centralbl. xii, 1892, pp. 277-280, remarks on the sculpture of the epidermis in Snakes.
- S. GARMAN, Science, xx, 1892, p. 16, figs., has further remarks on the origin and evolution of the Ophidian "Rattle."
- F. NIEMANN, Arch. f. Nat. lviii, i, 1892, pp. 262-286, pl. xiv, deals with the morphology and physiology of the labial and poison glands of Snakes.
- J. J. QUELCH writes on "Venom in Harmless Snakes," and refers in particular to the effect on himself of a bite from the opisthoglyphous *Erythrolamprus venustissimus*. Zool. (3) xvii, 1893, p. 30.
- C. J. MARTIN, P. Linn. Soc. N.S.W. (2) vii, 1892, pp. 319-322, and J. R. Soc. N.S.W. xxvi, 1892, pp. 240-264, makes observations on the poisonous constituents of the venom of *Pseudechis porphyriacus*.
- L. VAILLANT records observations made in the Garden of Plants on the feeding of Snakes. N. Arch. Mus. (3) iv, 1892, pp. 221-234. Abstract in CR. cxv, 1892, pp. 277-279.
- O. P. HAY, P. U. S. Nat. Mus. xv, 1892, pp. 385-397, has notes on the breeding habits, eggs, and young of various North American Snakes.
- G. A. BOULENGER, Nat. Sci. i, 1892, pp. 44-49, figs., writes on Marine Snakes.

## TYPHLOPIDÆ.

*Typhlops curtus*, n. sp., DOUGLAS-OGILBY, Rec. Austral. Mus. ii, 1892, p. 23, Gulf of Carpentaria [= *T. ligatus*, Ptrs.—REC.] *T. boettgeri*, p. 39, pl. ii, fig. 6, Madagascar, and *crossii*, p. 52, pl. iii, fig. 5, Niger, n. spp., BOULENGER, Cat. Sn. i, 1893.

## GLAUCONIIDÆ.

*Glauconia distantii*, n. sp., BOULENGER, in Distant's Naturalist in the Transvaal, p. 175, fig., Transvaal.

## BOIDÆ.

*Eryx*, Daud., and *Gongylophis*, Wagl. : A synopsis of the species is given by BOULENGER, Ann. N. H. (6) ix, 1892, p. 75. *Gongylophis muelleri*, n. sp., *id.*, *ibid.* p. 74, Sennar. *E. jaculus*, L. : Note on Transcaspiian specimens ; BOULENGER, P. Z. S. 1891, p. 631.

## UROPELTIDÆ.

*Rhinophis travancoricus*, n. sp., BOULENGER, Cat. Sn. i, p. 143, pl. ix, fig. 3, 1893, and J. Bomb. N. H. Soc. vii, 1892, p. 318, Travancore.

## COLUBRIDÆ.

*Aglyphæ.*

*Dromicodryas*, n. g. for *Herpetodryas bernieri*, D. & B., BOULENGER, Cat. Sn. i, p. 189, 1893.

*Eutania elegans brunnea* and *lineolata*, n. subsp., COPE, P. U. S. Nat. Mus. xiv, 1892, pp. 654 & 655, California. *E. infernalis vidua*, n. subsp., *id.*, *ibid.* p. 658, California. *E. sirtalis semifasciata*, p. 662, Illinois and Wisconsin, and *trilineata*, p. 664, Oregon and Montana, n. subsp., *id.*, *ibid.* *E. brachystoma*, n. sp., COPE, Am. Nat. xxvi, 1892, p. 964, fig., W. Pennsylvania [= *E. leptcephala*, B. & G.—REC.] *E. aurata*, n. sp., COPE, P. U. S. Nat. Mus. xiv, 1892, p. 659, New Mexico. *E. præocularis*, n. sp., BOCOURT, Le Nat. xiv, 1892, p. 278, Belize, Honduras.

*Tropidonotus infernalis*, Blainv. : On variations in the labial shields ; BOCOURT, Bull. Soc. Z. Fr. xvii, 1892, p. 40. *T. natrix*, L. : On the occurrence of the striped variety near Nantes, Brittany ; H. & T. PIEL DE CHURCHEVILLE, Bull. Soc. Ouest France, ii, 1892, p. 35, pl. ii. *T. conspicillatus*, Gthr. : redescribed, from Sumatra, by BÆTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 109. *T. tessellatus*, var. *flavescens*, Werner, an albino ; WERNER, Verh. z.-b. Wien, xlii, 1892, p. 355. *T. obliquus*, Hallow., and *transversus*, Hallow. : notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 103. *T. petersii*, n. sp., BOULENGER, Cat. Sn. i, p. 225, pl. xiv, fig. i, 1893, Borneo.

*Natrix fasciata pleuralis*, n. subsp. ; COPE, P. U. S. Nat. Mus. xiv, 1892, p. 672, Mississippi and Georgia.

*Macropophis*, n. subg. for *Tropidonotus hypomelas*, Gthr., and *T. dendrophips*, Gthr. ; BOULENGER, Cat. Sn. i, p. 264, 1893.

*Macropisthodon*, n. g. for *Tropidonotus flaviceps*, D. & B., and allies ; BOULENGER, *t. c.* p. 265.

*Storeria victa*, n. sp. ; O. P. HAY, Science, xix, 1892, p. 199, Florida.

*Rhabdops*, n. g., for *Ablabes olivaceus*, Bedd., and *A. bicolor*, Gthr. ; BOULENGER, Cat. Sn. i, p. 300, 1893.

*Plagiopholis*, n. g., for *P. blakewayi*, n. sp. ; BOULENGER, *t. c.* p. 301, pl. xix, fig. 3, Shan States.

- Trirhinopholis*, n. g., for *T. nuchalis*, n. sp.; BOULENGER, Cat. Sn. i, p. 419, pl. xxviii, fig. 1, Shan States.
- Tetralepis*, n. g., allied to *Ablabes*, D. & B., but with the dentition of *Homalosoma*, Wagl., and only four upper labial shields; BÆTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 124. *T. fruhstorferi*, n. sp.; *id. t. c.*, p. 125, Tengger Mts., Java.
- Ocyrrhabdium*, n. n. for *Stenognathus*, D. & B., *nec* Chaud.; BOULENGER, Cat. Sn. i, p. 302.
- Lycognathophis*, n. g., for *Psammophis seychellensis*, Schleg.; BOULENGER, *t. c.* p. 317.
- Ablabophis*, n. g., for *Coronella rufula*, Licht.; BOULENGER, *t. c.* p. 318.
- Lamprophis fuscus*, n. sp., BOULENGER, *t. c.* p. 322, pl. xx, fig. 4, Cape of Good Hope.
- Gonionotophis*, n. n. for *Gonionotus*, Mocq. *nec* Gray, BOULENGER, *t. c.* p. 323.
- Gonionotus vossii*, n. sp., BÆTTGER, Zool. Anz. xv, 1892, p. 418, Cameroons.
- Lycophidium meleagris*, p. 337, pl. xxi, fig. 2, Angola, *jacksoni*, p. 340, pl. xxi, fig. 3, E. Africa, and *abyssinicum*, p. 342, pl. xxii, fig. 2, Abyssinia, n. spp., BOULENGER, *t. c.*
- Lycodon striatus*, Shaw, recorded from Transcaspia by BOULENGER, P. Z. S. 1891, p. 631. *L. stormi*, n. sp., BÆTTGER, Zool. Anz. xv, 1892, p. 418, Celebes.
- Stegonotus heterurus*, n. sp., BOULENGER, Cat. Sn. i, p. 367, pl. xxv, fig. 1, Duke of York I. and New Britain. *S. dumerilii*, n. n. for *Lycodon muelleri*, D. & B.; *id. t. c.* p. 368.
- Zamenis*, Wagl.: a synopsis of the species recorded from S. W. Asia; BOULENGER, P. Z. S. 1891, p. 632. *Z. gemonensis*, Laur.: on its distribution in France; R. MARTIN, Bull. Soc. Ouest France, ii, 1892, p. 149.
- Bascanium semilineatum*, n. sp., COPE, P. U. S. Nat. Mus. xiv, 1892, p. 626, Arizona.
- Philophyllophis*, *Pantherophis*, and *Potamophis*. These *nomina nuda* of Fitzinger are revived by GARMAN, Bull. Ess. Inst. xxiv, 1892, pp. 105 & 108, to replace *Haldea*, B. & G., *Cyclophis*, Gthr., and *Scotophis*, B. & G.
- Coluber enganensis*, n. sp., VINCIGUERRA, Ann. Mus. Genov. (2) xii, 1892, p. 524, Engano I.
- Rhinechis scalaris*, Mich.: on its habits in confinement; H. WERNER, Zool. Gart. xxxiii, 1892, p. 40.
- Dromicus doliocercus*, n. sp., PERACCA, Boll. Mus. Zool. Tor. vii, 1892, No. 112, pl. i, fig. 1, Madagascar.
- Herpetodryas biserialis*, Gthr., *brunneus*, Gthr., and *reticulatus*, Ptrs.: notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, pp. 85, 90, & 91.
- Dendrophidium dendrophis*, Schl., described and figured by DUGES, Nat. Mex. (2) ii, 1892, p. 100, pl. v.
- Dendrophis helena*, n. sp., WERNER, Zool. Anz. xvi, 1893, p. 81, Ceylon.

- Simotes meyerinkii*, Stdr., = *S. octolineatus*, Schn.; BOULENGER, Ann. N. H. (6) ix, 1892, p. 74.
- Conopsis lineatus*, Kenn.: on variations in the head-shields; BOCOURT, Bull. Soc. Z. Fr. xvii, 1892, p. 41.
- Cyclophis modestus*, Mart., n. var. *punctatolineata*; BÆTTGER, Ber. Senck. Ges. 1892, p. 147, Armenia.
- Pseudocyclophis walteri*, Bttgr.: note by BOULENGER, P. Z. S. 1891, p. 632.
- Tropidoclonium annulatum*, n. sp., BOCOURT, Le Nat. xiv, 1892, p. 132, Godines, Guatemala.
- Chilomeniscus stramineus fasciatus*, n. subsp., COPE, P. U. S. Nat. Mus. xiv, 1892, p. 595, California.
- Idiopholis*, n. g. Body cylindrical; head not distinct from neck; tail very short; three internasals and two præfrontals; no loreal, no præocular, no supraocular, no anterior temporal; nostril between two shields; eye small, with round pupil; two pairs of chin-shields, anterior in contact with symphysial; scales smooth; anal single; subcaudals double; maxillary teeth numerous, equal, very small.
- I. collaris*, n. sp., MOCQUARD, Le Nat. xiv, 1892, p. 35, and Mém. Soc. Zool. v, 1892, p. 191, pl. vii, fig. 1, W. Borneo.
- Dasypeltis scabra*, L.: on the manner in which it feeds on eggs; SCLATER, P. Z. S. 1892, p. 476.

### *Opisthoglyphæ.*

- Coniophanes signatus*, n. sp., GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 91, Guayaquil, Ecuador.
- Tachymenis boulengeri*, n. sp., PERACCA, Boll. Mus. Zool. Tor. vii, 1892, No. 112, pl. i, fig. 2, Madagascar.
- Psammophylax variabilis*, n. sp., GÜNTHER, P. Z. S. 1892, p. 557, pl. xxxv (1893), Nyassaland.
- Psammophis longifrons*, Blgr.: note by F. DRECKMANN, J. Bomb. Soc. vii, 1892, p. 406.
- Dipsas trigonata*, Schn., recorded from Transcaspia by BOULENGER, P. Z. S. 1891, p. 633.
- Leptodira annulata*, L.: notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 90.
- Tantilla annulata*, n. sp., BÆTTGER, Zool. Anz. xv, 1892, p. 419, Nicaragua.
- Gerardia prevostiana*, Eyd. & Soul., recorded from Ceylon by HALY, J. A. S. (Ceylon), xi, 1892, p. 197.

### *Proteroglyphæ.*

- Hoplocephalus suboccipitalis*, n. sp., DOUGLAS-OGILBY, Rec. Austral. Mus. ii, 1892, p. 23, Moree, New South Wales.

- Dendraspis angusticeps*, Smith, described from S. Thomé by BEDRIAGA, O Istituto, No. 6, 1892. The same Snake is referred to *D. jamesonii*, Trail, by BOCAGE, J. Sci. Lisb. (2) ii, 1892, p. 265.
- Hydrus platurus*, L.: notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 88.

## VIPERIDÆ.

- Causus rostratus*, Gthr., redescribed as *C. rostratus*, n. sp., by MOCQUARD, Le Nat. xvi, 1892, p. 35; the error corrected, p. 64.
- Vipera*, Laur.: J. DE BEDRIAGA, C.R. Congrès Internat. Zool. i, 1892, pp. 236-241, diagnoses the species of the Mediterranean district. *V. berus*, L.: on variations in British specimens; BOULENGER, Zool. (3) xvi, 1892, p. 87. A. B. MEYER & F. HELM, J. Ber. ornith. Beobacht. Stat. Sachsen, vi, pp. 55-63, have compiled interesting information on its occurrence and habits in Saxony. *V. lebetina*, L., n. var. *deserti*; ANDERSON, P. Z. S. 1892, p. 20, pl. i, fig. 3, Duirot, Tunisia.
- A. E. FEOKTISTOW'S paper on the physiology of the rattle of *Crotalus durissus* is translated in Ann. N. H. (6) xi, 1893, pp. 54-58.
- Crotalus adamanteus ruber*, n. subsp., COPE, P. U. S. Nat. Mus. xiv, 1892, p. 690, N. America.
- Trimeresurus xanthomelas*, Gthr. (= *jerdoni*, Gthr.), figured by GÜNTHER, in Pratt's Snows of Tibet, pl. i, fig. A. *T. okinavensis*, n. sp., BOULENGER, Ann. N. H. (6) x, 1892, p. 302, Great Loo Choo I.
- Prociopera bættgeri*, n. g. & sp., for a fossil poison-tooth from the Lower Miocene of Morbach-Biebrich, Germany; KINKELIN, Zool. Anz. xv, 1892, p. 93. Remarks by COPE, t. c. p. 224.

## INCERTÆ SEDIS.

- Coniophis*, n. g., for Ophidian vertebræ, the affinities of which are still unsettled. *C. precedens*, n. sp. (foss.), MARSH, Am. J. Sci. (3) xliii, 1892, p. 450, fig., Ceratops beds (Cretaceous) of Wyoming.

## ORNITHOSAURIA.

- S. W. WILLISTON, Kansas Quart. i, 1892, pp. 1-13, pl. i, describes remains of *Pteranodon*, Marsh, and *Nyctodactylus*, Marsh, from Kansas, and proposes to divide the Order into three families, viz.: *Pterodactylidæ* (with subfamilies *Pteranodontinæ* and *Pterodactylinæ*), *Rhamphorhynchidæ*, and *Ornithochiridæ*.
- Pterodactylus cerinensis*, H. v. Mey., described and figured by LORTET, Arch. Mus. Lyon, v, 1892, p. 129, fig., pl. v, figs. 3 & 4.

## DINOSAURIA.

- H. G. SEELEY, Q. J. Geol. Soc. xlviii, 1892, Proc. pp. 108-191, discusses the relations of the Saurischian Dinosaurs.
- O. C. MARSH, Am. J. Sci. (3) xliii, 1892, pp. 81-83, pls. ii & iii, has remarks on the skull of the *Ceratopsidae*, and a restoration of the skull of *Torosaurus latus*, Marsh.
- R. LYDEKKER, Q. J. Geol. Soc. xlviii, 1892, p. 375, fig., has a note on some Sauropodous Dinosaurian foot-bones from the Wealden.
- R. BURCKHARDT, JB. Mineral. 1892, ii, pp. 71 & 72, fig., criticizes Marsh's interpretation of the brain of *Triceratops flabellatus*.
- Iguanodon hillii*, n. sp., for a tooth from the Lower Chalk near Hitchin, England; E. T. NEWTON, Geol. Mag. (3) ix, 1892, p. 49.
- Claosaurus annectens*, n. sp., MARSH, Am. J. Sci. (3) xliii, 1892, p. 453, & xlv, 1892, p. 171, pl. ii, and restoration, p. 343, pl. vi, Laramie formation, Wyoming. On its skull and brain: *id. op. cit.* xlv, 1893, p. 83, pls. iv & v.
- Polacanthus*, Hulke: on the pelvis; SEELEY, Q. J. Geol. Soc. xlviii, 1892, p. 81, figs.; LYDEKKER, *t. c.* p. 148, figs.
- Paleoscincus costatus*, Leidy, is regarded as a Stegosaurian tooth by MARSH, Am. J. Sci. (3) xlv, 1892, p. 173. *P. latus*, n. sp., *id. ibid.* pl. iii, fig. 2, Ceratops beds, Wyoming.
- Stegosaurus ungulatus*, Marsh: tooth figured; MARSH, *ibid.* pl. iv, fig. 1.
- Laelaps incrassatus*, Cope: description of the skull; COPE, P. Am. Phil. Soc. xxx, 1892, p. 240.
- Ceratosauros nasicornis*, Marsh: restoration by MARSH, Am. J. Sci. (3) xlv, 1892, p. 347, pl. vii.
- Anchisaurus colurus*, Marsh: further notes and figures by MARSH, Am. J. Sci. (3) xliii, 1892, p. 543, pls. xv & xvi, & xlv, 1893, p. 169, pl. vi. *A. solus*, n. sp., *id. op. cit.* xliii, p. 545, Trias, Connecticut River.
- Ornithomimus*, Marsh, should probably be referred to the *Theropoda*; MARSH, Am. J. Sci. (3) xliii, 1892, p. 451. *O. sedens*, p. 451, and *minutus*, p. 452, n. spp., *id. ibid.*, Ceratops beds, Wyoming.
- Aublysodon*, Leidy: remarks by MARSH, Am. J. Sci. (3) xlv, 1892, p. 174. *A. amplus*, p. 174, and *cristatus*, p. 175, n. spp., MARSH, *t. c.*, Laramie formation, North America

## EMYDOSAURIA.

- W. KÜKENTHAL, Morph. JB. xix, 1892, pp. 42-55, pl. ii, describes the skeleton of the manus in young Crocodiles, and draws special attention to the hyperphalangy in the fourth and fifth fingers, which shows that the existing Crocodilians are derived from forms more thoroughly adapted to aquatic life.
- C. ROESE, Verh. Anat. Ges. 1892, pp. 225-227, remarks on the development of the teeth in Crocodiles.

- C. P. SLUITER, Anat. Anz. vii, 1892, pp. 540-545, figs., writes on Jacobson's organ in *Crocodylus porosus*.
- Tomistoma*, S. Müll.: on fossil remains from the Miocene of Nurri, Italy; LOVISATO, Atti Acc. Pontif. Lincei (5) i, 1892, Rend. p. 436.
- Rhamphostoma neogea*, Burm. (foss.): note by AMBROSETTI, Bol. Ac. Cordoba, x, 1890, p. 414.
- Leptorhamphus*, n. g., near *Gavialis*, for *L. entrerrianus*, n. sp. (foss.); AMBROSETTI, t. c. p. 417, Oligocene, Parana.
- Oxydonsaurus*, n. g., near *Gavialis*, for *O. striatus*, n. sp. (foss.); AMBROSETTI, t. c. p. 419, Oligocene, Parana.
- Proalligator*, n. g. for *Crocodylus australis*, Bravard (foss.); AMBROSETTI, t. c. p. 420.
- Atoposaurus jourdani*, H. v. Mey. (foss.), described and figured by LORTET, Arch. Mus. Lyon, v, 1892, p. 92, figs., pl. xi, figs. 9-16.
- Alligatorellus beaumonti*, Gerv. (foss.), described and figured; LORTET, t. c. p. 99, pls. ix bis. & xi, figs. 1-8.
- Alligatorium meyeri*, Gerv. (foss.), described and figured; LORTET, t. c. p. 108, pl. x.
- Gavialinum*, n. g. (*Gavialidae* ?) for *G. rhodani*, n. sp. (foss.); LORTET, t. c. p. 122, pl. viii, Bathonian, Villebois, France.
- Crocodyleimus robustus*, Gerv. (foss.), described and figured by LORTET, t. c. p. 114, pl. ix.

## CHELONIA.

- G. BAUR, Anat. Anz. vii, 1892, pp. 206-211, figs., has further remarks on the carpus of Chelonians.
- E. BATAILLON, Ann. Soc. L. Lyon (2) xxxix, 1892, pp. 81-86, pl. —, has a contribution to the study of the arterial circulation in the land Tortoise.
- L. WILL, Biol. Centralbl. xii, 1892, pp. 182-192, figs., writes on gastrulation in the Chelonians.
- K. MITSUKURI's second and third contributions to the embryology of Reptilia, J. Coll. Sci. Japan, iv, 1891, pp. 1-53, pls. i-x, & v, 1892, pp. 35-52, pls. ii-iv, deals with the foetal membranes of *Chelonia*, the researches being based on *Clemmys japonica* and *Trionyx japonicus*.
- Trionyx melitensis*, Lyd. (foss.), = ? *T. ragusensis*, De Greg. 1883; DE GREGORIO, Nat. Sicil. xi, 1892, p. 182. *T. leucopotamicus*, n. sp. (foss.), COPE, Contr. Canad. Pal. iii, 1891, p. 5, pl. i, figs. 8 & 9, Lower Miocene, Canada. *T. gemmellaroi*, p. 11, pls. i & v, figs. 2-5, *capelinii*, p. 26, pls. ii & iii, and *affinis*, p. 47, pl. v, fig. 1, n. spp. (foss.); NEGRI, Mem. Soc. Ital. Sci. Nat. (3) viii, 1892, No. 7, Eocene of Monte Bolca.
- Miolania owenii*, A. S. Woodw. (foss.): on some remains from New S. Wales; R. ETHERIDGE, JUN., Rec. Austral. Mus. ii, 1893, p. 39.

- L. LORTET, Arch. Mus. Lyon, v, 1892, p. 5, proposes a new family, "*Halmyrachelides*," for *Idiochelys*, H. v. Mey., and *Hydropelta*, H. v. Mey.
- Idiochelys fitzingeri*, H. v. Mey. (foss.), described and figured by LORTET, t. c. p. 7, pl. i, & pl. ii, figs. 1 & 2.
- Hydropelta meyeri*, H. v. Mey. (foss.), described and figured by LORTET, t. c. p. 18, pl. iii, figs. 3-5.
- Eurysternum crassipes*, Wagn. (foss.), described and figured; LORTET, t. c. p. 24, pl. ii, figs. 4-7, and pl. ii bis.
- G. BAUR, Zool. Anz. xv, 1892, pp. 155-159, remarks on various genera of *Testudinidæ*, and insists on the distinctive characters of the families *Emydidæ* and *Testudinidæ*.
- Testudo græca*, L.: on its habits; G. RUMPF, Zool. Gart. xxxiii, 1892, p. 260; A. GIRTANNER, t. c. p. 349. *T. turgida*, n. sp. (foss.), COPE, P. Am. Phil. Soc. xx, 1892, p. 27, Upper Cenozoic of Texas.
- Emys*, Dum.: G. BAUR, *op. cit.* xxx, 1892, pp. 40 & 245, discusses which species should be regarded as the type of this genus.
- Cistudo cinosternoides*, Gray: notes by GARMAN, Bull. Ess. Inst. xxiv, 1892, p. 99.
- Cinosternum flavescens*, Ag.: note by COPE, P. Ac. Philad. 1892, p. 333.

## ICHTHYOSAURIA.

- E. FRAAS, JB. Mineral. 1892, ii, pp. 87-90, figs., describes and figures a specimen of *Ichthyosaurus quadriscissus*, Qu., showing the contours of the soft parts, including dorsal and caudal fins.
- A propos of Fraas's discovery, L. DOLLO, P.-v. Soc. Belg. Géol. vi, 1892, pp. 167-174, figs., discusses the origin of the dorsal fin in these Reptiles.
- R. LYDEKKER, Nat. Sci. i, 1892, pp. 514-521, reviews the various accessions to our knowledge of the *Ichthyosauria*.
- J. W. HULKE, P. R. Soc. lii, 1892, pp. 233-255, has remarks on the Ichthyosaurian shoulder-girdle.
- W. KÜKENTHAL, JB. Mineral. 1892, i, pp. 161-166, remarks on the hyperphalangy of Ichthyosaurs as compared to that of Cetaceans.
- Ichthyosaurus numismalis*, n. sp., E. FRAAS, JH. Ver. Württ. xlviii, 1892, p. 22, pl. i, Lias, Württemberg. *I. burgundiae*, Gaudry, described and figured by GAUDRY, Bull. Soc. Autun, v, 1892, p. 365, pl. xv.

## PLESIOSAURIA.

- H. G. SEELEY, P. R. Soc. li, 1892, pp. 119-151, figs., deals with the nature of the shoulder-girdle and clavicular arch in the *Plesiosauria*, which he divides into two groups, termed *Dicranopleura* and *Cercidopleura*.

- The subject further discussed by J. W. HULKE, P. R. Soc. lii, 1892, pp. 233-255, figs.
- H. G. SEELEY, Q. J. Geol. Soc. xlviii, 1892, pp. 586-604, discusses the characters and systematic position of the *Mesosauria*, which sub-order he divides into two groups : *Proganosauria* and *Neusticosauria*.
- Mesosaurus tenuidens*, Gerv., described and figured ; SEELEY, *t. c.* p. 591, pl. xviii, fig. 5. *M. pleurogaster*, n. sp., *id. t. c.* p. 587, pl. xviii, figs. 1-4, Kimberley, S. Africa.
- Eunotosaurus*, n. g., probably referable to the *Mesosauria*. *E. africanus*, n. sp., SEELEY, *t. c.* p. 583, figs., Beaufort West, S. Africa.
- Parthanosaurus*, n. g., allied to *Nothosaurus*, for *P. zittelii*, n. sp., SKUPHOS, Zool. Anz. xvi, 1893, p. 67, Trias of Vorarlberg.

## THECODONTIA.

- Belodon*, H. v. Mey., and *Aëtosaurus*, Fraas, are regarded by SEELEY, Q. J. Geol. Soc. xlviii, 1892, Proc., p. 189, as primitive Cetiosaurians.
- Episcoposaurus haplocerus*, n. sp., COPE, P. Am. Phil. Soc. xx, 1892, p. 129, Trias of Texas.

## ACROSAURIA.

- Pleurosaurus goldfussi*, H. v. Mey. (foss.), described and figured by LORTET, Arch. Mus. Lyon, v, 1892, p. 81, figs., pl. vii. The Recorder points out, Ann. N. H. (6) xi, 1893, p. 208, that this Lizard should be regarded as the type of a distinct order of Reptiles, combining characters of the Proterosaurian *Rhynchocephalia* and *Squamata*, for which the name *Acrosauria*, H. v. Meyer, 1860, may be used.

## RHYNCHOCEPHALIA.

- L. DOLLO, Bull. Soc. Belg. Géol. v, Mém. 1892, pp. 151-199, pls. vi-viii, completes his description of *Champsosaurus*, and discusses its position among the Rhynchocephalians, which he pronounces to be near the *Proterosauridae*.
- G. A. BOULENGER gives a revised scheme of the classification proposed by him in 1891; the *Champsosauridae* are transferred to the sub-order *Proterosauria*, and the *Sauranodontidae* are added to the sub-order *Rhynchocephalia vera*; Ann. N. H. (6) xi, 1893, p. 209.
- Diopseus*, Cope (foss.), is regarded as a Rhynchocephalian, somewhat allied to *Palæohatteria*, Credn.; COPE, Tr. Am. Phil. Soc. xvii, 1892, p. 15.
- Homoeosaurus jourdani*, p. 69, pl. vi, figs. 1-5, and *rhodani*, p. 72, pl. iv, fig. 6, n. spp. (foss.), LORTET, Arch. Mus. Lyon, v, 1892, Jurassic, Corin, France.

*Sauranodon incisivus*, Jourdan (foss.), [= *Saphæosaurus thollierii*, H. v. Mey.], described and figured by LORTET, Arch. Mus. Lyon, v, p. 30, figs., pls. iiter, iii, iv, & v. A new family, *Sauranodontidæ*, is established by LORTET for its reception.

## ANOMODONTIA.

H. G. SEELEY, Phil. Tr. clxxxiii (B), 1892, pp. 311-370, pls. xvii-xxiii, describes remains of *Pariosaurus* and *Procolophon*, at the same time discussing the classification of the *Anomodontia*, which are now divided into six groups.

G. B. HOWES remarks on the shoulder-girdle of *Keirognathus*, Seeley, and other Dicynodonts; J. Anat. Phys. xxvi, 1892, pp. 403-405.

*Gordonia*, n. g., allied to *Dicynodon*, Ow., for *G. traquairi*, *huxleyana*, *duffiana*, and *juddiana*, n. spp.; E. T. NEWTON, P. R. Soc. lii, 1892, p. 389, Trias of Elgin, Scotland.

*Geikia*, n. g., allied to *Ptychognathus*, Ow., for *G. elginensis*, n. sp., E. T. NEWTON, t. c. p. 390, Elgin.

*Elginia*, n. g., nearest allied to *Pariosaurus*, Ow., for *E. mirabilis*, n. sp.; E. T. NEWTON, t. c. p. 391, Elgin.

*Pareiasaurus bairdi*, n. sp., SEELEY, t. c. p. 322, Trias, Karroo Group, S. Africa.

## BATRACHIA.

O. BÄTTGER issues a catalogue of the collection of Batrachians in the Senckenberg Museum. Frankfort a/M.: 1892, 8vo, 73 pp.

W. L. SCLATER has compiled a list of the Batrachians in the Indian Museum, Calcutta. London: 1892, 8vo, 43 pp.

O. S. STRONG, Anat. Anz. vii, 1892, pp. 467-471, writes on the structure and homologies of the cranial nerves of the Batrachians, as determined by their peripheral distribution and internal origin.

H. REX, Morph. JB. xix, 1892, pp. 295-311, pl. xi, contributes to the morphology of the cerebral veins in Batrachians.

L. EDINGER, Abh. Senck. Ges. xviii, 1892, 55 pp., 5 pls., has a memoir on the brain of Batrachians. Abstract in Anat. Anz. vii, 1892, pp. 472-476.

A. B. MACALLUM, Tr. Can. Inst. ii, 1892, pp. 221-260, pl. i, has studies on the blood of Batrachians.

M. C. DEKHUYSEN, Verh. Anat. Ges. 1892, pp. 90-103, pl. i, writes on the same subject.

H. GRIËSBACH, Leuckart Festschrift, 1892, pp. 215-227, pl. xxiii, further contributes to the knowledge of the blood-corpuscles of Batrachians.

O. C. FARRINGTON, Tr. Conn. Ac. viii, 1892, pp. 309-314, pl. xxiv, describes the kidney, with nephrostomes in Batrachians.

- H. F. E. JUNGENSEN, Vid. Medd. 1892 (1893), pp. 32-72, pls. ii & iii, writes on the development of the Müllerian duct in Batrachians.
- A. C. EYCLESHYMER, J. Morph. viii, 1893, pp. 189-193, figs., has a note on the development of the optic vesicles in Batrachians.
- H. H. FIELD remarks on the metameric development of the kidney in Batrachians; Verh. Deutsch. Zool. Ges. ii, 1892, pp. 113-117.
- W. ROUX, Verh. Anat. Ges. 1892, pp. 22-62, reviews recent researches on the segmentation of the Batrachian ovum.
- G. BORN, Anat. Anz. vii, 1892, pp. 772-781 & 803-811, figs., writes on the first phases of the development of the Batrachian ovum.
- E. O. JORDAN & A. C. EYCLESHYMER, Anat. Anz. vii, 1892, pp. 622-624, have a note on the cleavage of the Batrachian ovum.
- H. S. GREENOUGH, Bull. Soc. Z. Fr. xvii, 1892, pp. 57-59, writes on the same subject.
- F. LEYDIG, Biol. Centralbl. xii, 1892, pp. 205-221, writes on the dermal excrescences of breeding Batrachians, and pp. 444-467, on the structure of the skin.
- G. A. BOULENGER, Nat. Sci. i, 1892, pp. 185-190, figs., reviews our knowledge of the poisonous secretion of Batrachians.
- K. KNAUTHE, Zool. Anz. xv, 1892, pp. 20-23, records his experiments on the influence of temperature on Batrachians.

## ECAUDATA.

- C. EMERY, Atti Acc. Pontif. Lincei (5) i, 1892, Rend., pp. 203-206, publishes the results of further studies of the skeleton of the manus in tailless Batrachians.
- H. ADOLPHI, Morph. JB. xix, 1892, pp. 315-375, figs., pl. xii, writes on variations in the spinal nerves and vertebral column of *Bufo viridis*.
- C. HASSE, Z. wiss. Zool. lv, 1892, pp. 252-264, pl. xii, writes on the development of the vertebral column in tailless Batrachians.
- E. GAUPP, Verh. Anat. Ges. 1892, pp. 183-190, writes on the endocranium of *Rana temporaria*.
- D. BERTELLI, Monit. Zool. Ital. iii, 1892, pp. 203-207, remarks on the tympanic membrane of *Rana esculenta*. French translation in Arch. Ital. Biol. xviii, 1893, pp. 458-462.
- A. E. SMIRNOW has a paper, in Russian, on the nerves of *Rana* and *Bufo*; Protok. obsch. estest. Kazan, 1889-90, Append. No. 112 (1890), 6 pp.
- W. BIEDERMANN, Arch. Ges. Phys. li, 1892, pp. 455-508, pl. xi, investigates the movements of the chromatophores in tailless Batrachians.
- G. A. BOULENGER, P. Z. S. 1891, pp. 593-627, pls. xlv-xlvii, gives descriptions and figures of the Tadpoles of the European Batrachians, with a key to their identification.
- F. E. SCHULZE, Abh. Ak. Berl. 1892, 66 pp., 6 pls., continues his studies of the structure of the larva of *Pelobates fuscus*.

- L. CAMERANO, Boll. Mus. Zool. Tor. vii, 1892, No. 140, writes on the action of running water and of light on the development of tailless Batrachians.
- W. N. PARKER reports on Experiments on the Respiration in Tadpoles of *Rana temporaria*, Rep. Brit. Ass. 1891, p. 694.
- F. ZIEGLER, Anat. Anz. vii, 1892, pp. 211-215, figs., describes the external characters of the frog-embryo.
- H. DEHNER, Verh. Ges. Würzb. (2) xxvi, 1892, pp. 1-18, pl. i, has a paper on the segmentation of the frog-ovum.
- O. HERTWIG, Arch. Mikr. Anat. xxxvii, 1892, pp. 353-503, pls. xvi-xx, has a paper on malformed frog-eggs.

## RANIDÆ.

- Rana*, L. : L. v. MÉHELÿ, Math. term. köz. xxv, 1892, pp. 1-63, pls. i-viii, has an illustrated memoir (in Hungarian) on the brown Frogs of Hungary (*R. temporaria*, L., *arvalis*, Nilss., and *agilis*, Thom.). *R. temporaria*, L. : on its occurrence in Ireland ; SCHARFF, Irish Nat. i, 1893, p. 1. *R. pretiosa*, B. & G. : Notes by TEST, Bull. U. S. Fish. Comm. 1891, p. 58 (1892). *R. agilis*, Thom. : on its occurrence in the Main district ; LEYDIG, Zool. Gart. xxxiii, 1892, p. 321. *R. camerani*, Blgr., and *R. macrocnemis*, Blgr. : notes by BËTTGER, Ber. Senck. Ges. 1892, pp. 134 & 136. *R. esculenta*, L. : on blue specimens ; LEYDIG, Zool. Gart. xxxiii, 1892, p. 1. *R. newtoni*, Bocage : redescribed by BEDRIAGA, O Istituto (Coimbra), xxxix, 1892, p. 2 of reprint. *R. masoni*, Blgr. : redescribed by BËTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 138. *R. vicina*, Stol. : p. 342, pl. xxiv, fig. 1, and *granulosa*, And., p. 346, redescribed by W. L. SCLATER, P. Z. S. 1892, who also has notes on *R. hascheana*, Stol., p. 344, *R. pulla*, Stol., p. 344, *R. gracilis*, Gravh., p. 345, *R. nigrovittata*, Blyth, p. 345, and *R. erythraea*, Schleg., p. 345. *R. assamensis*, p. 343, pl. xxiv, fig. 2, Khasi Hills, *limborgi*, p. 344, fig. 3, Tenasserim, and *tenasserimensis*, p. 345, fig. 4, n. spp., W. L. SCLATER, t. c. *R. holsti*, n. sp., BOULENGER, Ann. N. H. (6) x, 1892, p. 302, Great Loo Choo I. *R. octoplicata*, p. 83, United States [= *areolata*, B. & G.—REC.], and *schlueteri*, p. 84, Borneo, n. spp., WERNER, Zool. Anz. xvi, 1893. *R. microdisca*, n. sp., BËTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 137, Tengger Mts., Java. *R. nyassæ*, n. sp., GÜNTHER, P. Z. S. 1892, p. 558 (1893), Nyassaland. *R. schmackeri*, n. sp., BËTTGER, Katal. Senckenb. p. 11, 1892, Ichang, China. *R. oatesii*, n. sp., BOULENGER, Ann. N. H. (6) ix, 1892, p. 141, pl. ix, Toungoo, Burma. *R. albofrenata*, n. sp., F. MÜLLER, Festschr. Nat. Ges. Basel, 1892, p. 197, pl. iii, fig. i, Madagascar.
- Cornufer boulengeri*, n. sp., BËTTGER, Katal. Senckenb. p. 18, 1892, New Britain.

- Rhacophorus difficilis*, n. sp., BÆTTGER, Katal. Senckenb. p. 14, 1892, Madagascar. *R. boulengeri*, n. sp., PERACCA, Boll. Mus. Zool. Tor. vii, 1892, No. 112, pl. i, fig. 3, Madagascar. *P. dulitensis*, n. sp., BOULENGER, P. Z. S. 1892, p. 507, pl. xxx, fig. 1, Mt. Dulit, Borneo.
- Chiromantis rufescens*, Gthr.: on the 'nest' of a West African Tree Frog, probably of this species; W. J. HOLLAND, Am. Nat. xxvii, 1893, p. 67.
- Icalus cinerascens*, Stol., and *I. punctatus*, And., (= *glandulosus*, Jerd.): note on the type specimens; W. L. SCLATER, P. Z. S. 1892, p. 347. *I. aurifasciatus*, Schleg.: redescribed by BÆTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 142. *I. schmackeri*, n. sp., *id.* Katal. Senckenb. p. 17, 1892, Mindoro, Philippines.
- Rappia thomensis*, Bocage: redescribed by BEDRIAGA, O Istituto (Coimbra), xxxix, 1892 (p. 5 of reprint). *R. molleri*, n. sp., *id. t. c.* p. 13, S. Thomé, Gulf of Guinea.

## ENGYSTOMATIDÆ.

- Phrynisca levis*, Gthr., n. var. *exigua*, BÆTTGER, Katal. Senckenb. p. 22, 1892, Andes of Ecuador.
- Cophixalus*, n. g., allied to *Callula*, for *C. geislerorum*, n. sp., BÆTTGER, Katal. Senckenb. p. 24, 1892, New Guinea.
- Chaperina*, n. g.: Tongue elliptic, free behind; no vomerine teeth: a transverse dermal fold on the palate in front of the œsophagus; tympanum distinct; digits free, dilated into small disks; distal phalanx T-shaped; outer metatarsals bound together; pupil horizontal; transverse processes of sacrum rather strongly dilated; præcoracoids present, very slender; sternum cartilaginous; no omosternum. *C. fusca*, n. sp., MOCQUARD, Le Nat. xiv, 1892, p. 35, and Mém. Soc. Zool. v, 1892, p. 194, pl. vii, fig. 2, Sintang, Borneo.

## DYSCOPHIDÆ.

- Anodonthyla*, n. g.: no teeth on palate; toes free; pupil horizontal. *A. boulengeri*, n. sp., F. MÜLLER, Festschr. Nat. Ges. Basel, 1892, p. 198, pl. iii, fig. 2, Madagascar.
- Fanchonia*, n. g., referred to the *Dyscophidæ*, for *F. elegans*, n. sp., WERNER, Zool. Anz. xvi, 1893, p. 82, Tropical Africa?

## CYSTIGNATHIDÆ.

- Calyptocephalus gayi*, D. & B. *Lacerta caudiverbera*, L., is based on the larva of this frog; LATASTE, Act. Soc. Sci. Chili, i, 1892, p. 7. *Hylodes lehmanni*, p. 26, Colombia, *fleischmanni*, p. 27, Costa Rica, and *W-nigrum*, p. 28, Andes of Ecuador, n. spp., BÆTTGER, Katal. Senckenb. 1892.

## BUFONIIDÆ.

*Pseudophryne dendyi*, p. 62, North Gippsland, Victoria, and *semimar-morata*, p. 63, S. E. Victoria, n. spp., LUCAS, P. R. Soc. Vict. (2) iv, 1892.

*Nectophryne hosii*, n. sp., BOULENGER, P. Z. S. 1892, p. 508, pl. xxx, fig. 2, Mt. Dulit, Borneo.

*Bufo asper*, Gravh.: on a remarkable specimen from Borneo; BOULENGER, P. Z. S. 1892, p. 508. *B. fergusonii*, n. sp., BOULENGER, J. Bomb. N. H. Soc. vii, 1892, p. 317, Travancore.

*Rhinophrynus dorsalis*, D. & B.: description and figure of the skeleton, by A. DUGÈS, Nat. Mex. (2) ii, 1892, p. 98, pl. v.

## HYLIDÆ.

*Hyla amboinensis*, 'Horst: notes by BÆTTGER, Ber. Offenb. Ver. xxix-xxxii, 1892, p. 156. *H. albolimbata*, p. 40, S. America, *columbiana*, p. 41, Colombia, and *prosoblepon*, p. 45, Costa Rica, n. spp., BÆTTGER, Katal. Senckenb. 1892. *H. chloris*, n. sp., BOULENGER, P. Linn. Soc. N.S.W. (2) vii, 1892, p. 403, New South Wales. *H. (Trachycephalus) angustifrons*, n. sp., WERNER, Zool. Anz. xvi, 1893, p. 83, Brazil [= ? *H. nigromaculata*, Tsch.—REC.].

*Nototrema weinlandii*, pp. 175 & 837, pl. i, Ecuador, and *bolivianum*, pp. 176 & 840, pl. ii, Bolivia, n. spp., STEINDACHNER, Anz. Ak. Wien, 1892, and SB. Ak. Wien, ci, i, 1892.

## PELOBATIDÆ.

*Spea laticeps*, n. sp., COPE, Am. Nat. xxvii, 1893, p. 155, fig., Texas.

*Leptobrachium carinense*, Blgr.: on a specimen with vomerine teeth; W. L. SCLATER, P. Z. S. 1892, p. 347.

## DISCOGLOSSIDÆ.

L. v. MÉHELÿ publishes a translation in German of his paper on *Bombinator*; Math. Nat. Ber. Ung. x, 1892, pp. 55-79, pls. iv & v.

## CAUDATA.

J. DE BEDRIAGA gives a French translation of his synopsis of the larvæ of European tailed Batrachians. C.R. Ass. Fr. Sci. 1891, ii, pp. 540-546.

S. P. GAGE, P. Am. Ass. xli, 1892, p. 197, investigates the brain of *Molge viridescens*, Raf.

A. C. EYLESHYMER, Anat. Anz. vii, 1892, pp. 215-217, writes on parapophysis and epiphysis in the brain of *Amblystoma*.

O. A. ANDERSSON, Morph. JB., Anat. v, 1892, pp. 184-210, pls. xv-xviii, writes on the sympathetic nervous system of tailed Batrachians.

- K. W. SCHLAMPP, Z. wiss. Zool. iii, 1892, pp. 537-557, pl. xxi, investigates the structure of the eye of *Proteus anguineus*.
- H. H. WILDER, Morph. JB., Anat. v, 1892, pp. 155-176, pls. xii & xiii, describes the anatomy of the nasal region of *Cryptobranchus* and *Amphiuma*.
- C. HASSE, Z. wiss. Zool. liii (Suppl.), 1892, pp. 1-20, pls. i-iii, describes the development of the vertebral column of *Molge vulgaris*.
- J. S. KINGSLEY, Am. Nat. xxvi, 1892, pp. 671-680, describes the head of an embryo *Amphiuma means*.
- F. HOUSSAY, C.R. cxv, 1892, pp. 132-135, writes on the circulation in the head of the Axolotl-embryo.
- H. W. NORRIS, J. Morph. vii, 1892, pp. 23-34, pls. iii & iv, investigates the development of the auditory vesicle in *Amblystoma*.
- R. FICK, Anat. Anz. vii, 1892, pp. 818-821, has a preliminary note on the fecundation of the Axolotl-egg.
- F. LEYDIG, Zool. Anz. xv, 1892, pp. 309-312 & 356, remarks on the receptaculum seminis of tailed Batrachians.
- M. HEIDENHEIN, Anat. Anz. vii, 1892, pp. 432-435, figs., records the presence of rudimentary anal glands in female Newts.
- G. A. BOULENGER, Morph. JB., Syst. vi, 1892, pp. 447-452, reviews recent discoveries on the fecundation in the tailed Batrachians.
- DRASCH, Verh. Anat. Ges. 1892, pp. 244-253, makes observations on the poison-glands of the Salamander.
- Salamandra*, Laur.: *Molge luschni*, Stdr., is referred to this genus by BOULENGER, Ann. N. H. (6) ix, 1892, p. 74, and to the genus *Spelerpes* by BEDRIAGA, C.R. Congrès. Internat. Zool. i, 1892, p. 243.
- Triton longipes*, Strauch., = *Molge cristata*, Laur.; BOULENGER, Ann. N. H. (6) ix, 1892, p. 144. *Molge montandoni*, Blgr.: larva described and figured by BOULENGER, *op. cit.* (6) x, 1892, p. 304, fig.
- Molge palmata*, Schn.: Portuguese specimens are referred to this species by FERREIRA, J. Sci. Lisb. (2) ii, 1892, p. 195 [belong, no doubt, to *M. boscae*, Lat.—REC.]. *M. rusconii*, Gené.: on the pairing; BEDRIAGA, Zool. Anz. xvi, 1893, p. 102.
- Tylotriton andersoni*, n. sp., BOULENGER, Ann. N. H. (6) x, 1892, p. 304, Great Loo Choo I.
- Amblystoma tigrinum*, Green: G. HAHN, Rev. Quest. Sci. (2) i, 1892, pp. 178-205, reviews our knowledge of the Axolotl and its metamorphoses; Spanish translation in Nat. Mex. (2) ii, 1892, pp. 218-230.
- J. M. BERTOLDO, Le Nat. xiv, 1892, p. 15, records notes on the growth of Axolotls in confinement.
- Typhlotriton*, n. g., of the group *Desmognathinae*, but with the eyes concealed under the continuous skin of the head. *T. spelæus*, n. sp., STEJNEGER, P. U. S. Nat. Mus. xv, 1892, p. 115, pl. ix, Rock House Cave, Missouri.
- Necturus maculatus*, Raf.: on its introduction in the Hudson River; W. B. MARSHALL, Am. Nat. xxvi, 1892, p. 779.

## APODA.

P. & F. SARASIN, *Anat. Anz.* vii, 1892, pp. 812-815, have further remarks on the organ of hearing in Cæcilians.

*Dermophis thomensis*, Bocage, redescribed by BEDRIAGA, *O Istituto* (Coimbra), xxxix, 1892 (p. 13 of reprint).

*Siphonops paulensis*, n. sp., BËTTGER, *Katal. Senckenb.* p. 62, 1892, S. Paulo, Brazil.

## STEGOCEPHALA.

This Order is proposed to be transferred to the Class *Reptilia*; H. G. SEELEY, *Phil. Tr.* clxxxiii (B), 1892, p. 367.

*Ichniotherium cottle*, n. n. for foot-prints from the Permian of Friedrichroda, Thuringia; POHLIG, *Leuckart Festschrift*, 1892, p. 60, fig., pl. vii, fig. 1.



## V. PISCES.

BY

G. A. BOULENGER.

---

This subject is treated as follows, viz. :—

- I. TITLES OF WORKS AND PAPERS ARRANGED  
ALPHABETICALLY ACCORDING TO AUTHORS' NAMES.
  - II. GENERAL SUBJECT.
  - III. FAUNÆ.
  - IV. PALÆONTOLOGY.
  - V. REFERENCES, ARRANGED SYSTEMATICALLY.
- 

### I. TITLES.\*

- AGASSIZ, A. Preliminary Note on some Modifications of the Chromatophores of Fishes and Crustaceans. Bull. Mus. C. Z. xxiii, 1892, pp. 189-193, 1 pl.
- ALCOCK, A. On Utero-gestation in *Trygon bleekeri*. Ann. N. H. (6) ix, 1892, pp. 417-427, pl. xix.
- . Some Observations on the Embryonic History of *Pteroplatea micrura*. Op. cit. (6) x, 1892, pp. 1-8, pl. iv.
- . A Case of Commensalism between a Gymnoblasic Anthomedusoid (*Stylactis minoi*), and a Scorpænoid Fish (*Minous inermis*). T. c. pp. 207-214, fig.
- . Natural History Notes from H. M. Indian Marine Survey Steamer 'Investigator,' Lieut. G. S. Gunn, R.N., commanding. Series II, No 5 : On the Bathybial Fishes collected during the Season of 1891-92. T. c. pp. 345-365, pl. xviii.
- ALCOCK, R. The Digestive Processes of *Ammocetes*. P. Cambr. Phil. Soc. vii, 1892, pp. 252-255.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

- ANDREAE, A. Vorläufige Mittheilung über die Ganoiden (*Lepidosteus* und *Amia*) des Mainzer Beckens. Verh. Ver. Heidelb. (2) v, 1893, pp. 7-15, figs.
- ANTIPA, G. Ueber die Beziehungen der Thymus zu den sog. Kiemen-spaltorganen bei Selachiern. Anat. Anz. vii, 1892, pp. 690-692, fig.
- AYERS, H. Vertebrate Cephalogenesis. II. A Contribution to the Morphology of the Vertebrate Ear, with a Reconsideration of its Functions. J. Morph. vi, 1892, pp. 1-360, pls. i-xii.
- BASSANI, F. Gl' Ittioliti delle Marne di Salcedo e di Novale nel Vicentino. Atti Ist. Venet. (7) iii, 1892, pp. 1031-1045.
- BEAN, T. H. Notes on the Fishes collected in Mexico by Professor Dugès, with Descriptions of new species. P. U. S. Nat. Mus. xv, 1892, pp. 283-287, pl. xlv.
- . Una nuevo especie de Lampera. Nat. Mex. (2) ii, 1892, pp. 171 & 172, pl. viii.
- BEARD, J. The Transient Ganglion Cells and their Nerves in *Raia batís*. Anat. Anz. vii, 1892, pp. 191-206, figs.
- . Notes on Lampreys and Hags (*Myxine*). *Op. cit.* viii, 1892, pp. 59 & 60.
- BELLOTTI, C. Note al Manuale d'Ittiologia francese del Dott. Emilio Moreau. Atti Soc. Ital. xxxiv, 1892, pp. 19-35.
- . Un nuovo Siluroide giapponese. *T. c.* pp. 99-101, fig.
- BLANC, H. Note préliminaire sur la maturation et la fécondation de l'œuf de la truite. Bull. Soc. Vaud. (3) xxvii, 1892, pp. 272-275.
- BOHR, C. Sur la sécrétion de l'oxygène dans la vessie natatoire des Poissons. C.R. cxiv, 1892, pp. 1560-1562.
- BOLLMAN, C. H. A Review of the *Centrarchidae*, or Freshwater Sunfishes, of North America. Rep. U. S. Fish Comm. f, 1888, pp. 557-579, pls. lxxiii-lxxii (1891).
- BOULENGER, G. A. Third Account of the Fishes obtained by Surgeon-Major A. S. G. Jayakar at Muscat, East Coast of Arabia. P. Z. S. 1892, pp. 134-136.
- . On *Lucioperca marina*, C. & V. *T. c.* pp. 411-413, pl. xxv.
- . Description of a new Blennioid Fish from Kamtschatka. *T. c.* pp. 583-585, fig. (1893).
- . Note on *Toxotes microlepis*, Gthr., and *Toxotes microlepis*, Blyth. Ann. N. H. (6) ix, 1892, pp. 143 & 144.
- . Description of a new Siluroid Fish from China. *T. c.* p. 247.

- [BOULENGER, G. A.] On some new or little-known Fishes obtained by Dr. J. W. Evans and Mr. Spencer Moore, during their recent Expedition to the Province of Matto Grosso, Brazil. *Ann. N. H.* (6) x, 1892, pp. 9-12, pls. i & ii.
- . Note on the Variations of the Lateral Shields in the Three-spined Stickleback (*Gastrosteus aculeatus*). *Op. cit.* xi, 1893, pp. 228 & 229.
- BOVERI, T. Die Nierenkanälchen des *Amphioxus*. Ein Beitrag zur Phylogenie des Urogenitalsystems der Wirbelthiere. *Morph. JB., Anat.* v, 1892, pp. 429-510, figs., pls. xxxi-xxxiv.
- . Ueber die Bildungsstätte der Geschlechtsdrüsen und die Entstehung der Genitalkammern bei *Amphioxus*. *Anat. Anz.* vii, 1892, pp. 170-181, figs.
- BOYER, E. R. The Mesoderm in Teleosts; especially its Share in the Formation of the Pectoral Fin. *Bull. Mus. C. Z.* xxiii, 1892, pp. 91-133, 8 pls.
- \*BRAUS, H. Ueber die Rami ventrales der vorderen Spinalnerven einiger Selachier. Inaugural Dissertation. Jena: 1892, 8vo, 35 pp.
- BREHM, A. C. Tierleben. Die Fische. Dritte Auflage, unter Mitwirkung von W. HAACKE neubearbeitet von PECHUEL-LOESCHE. Leipzig and Vienna: 1892, 8vo, 517 pp., 146 figs., 11 pls., 1 map.
- BRIDGE, T. W., & HADDON, A. C. Contributions to the Anatomy of Fishes. II. The Air-Bladder and Weberian Ossicles in the Siluroid Fishes. *Abstract, P. R. Soc.* lii, 1892, pp. 139-157.
- BROWNE, M. Notes upon *Colobodius*, a genus of Mesozoic Fossil Fishes. *Rep. Brit. Ass.* 1891, pp. 644 & 645 (1892).
- BURCKHARDT, P. Das Centralnervensystem von *Protopterus annectens*. Eine vergleichend-anatomische Studie. Berlin: 1892, 8vo, 64 pp., 4to atlas, 5 pls.
- . Ueber das Centralnervensystem der Dipnoër. *Verh. deutsch. Zool. Ges.* ii, 1892, pp. 92-95.
- . Das Centralnervensystem von *Protopterus annectens*. *SB. nat. Fr.* 1892, pp. 23-25.
- BURNE, R. H. On the Presence of a Branchial Basket in *Myxine glutinosa*. *P. Z. S.* 1892, pp. 706-708, pl. xlvii (1893).
- BUXBAUM, L. Ein Zug Aale auf der Wanderschaft im Main. *Zool. Gart.* xxxiii, 1892, pp. 20 & 21.
- . Der Wanderzug der Mainfische im Frühling 1892. *T. c.* pp. 184-188.
- CALDERWOOD, W. L. A Contribution to our Knowledge of the Ovary and Intra-ovarian Egg in Teleosteans. *J. Mar. Biol. Ass.* (2) ii, 1892, pp. 298-312, pls. xi & xii.
- . Notes on *Centrina salviani*. *T. c.* pp. 322-324, pl. xiii.

- CAVAZZANI, E. L'ichthyotoxique chez les *Petromyzon marinus*. Arch. Ital. Biol. xviii, 1892, pp. 182-186.
- CLAYPOLE, E. W. On the Structure of the American Pteraspidian, *Paleaspis* (Claypole); with Remarks on the Family. Q. J. Geol. Soc. xlviii, 1892, pp. 542-561, figs.
- A new Gigantic Placoderm from Ohio. Am. Geol. x, 1892, pp. 1-4, fig.
- The Head of *Dinichthys*. *T. c.* pp. 199-207.
- A new Coccosteian—*Coccosteus cuyahage*. *Op. cit.* xi, 1893, pp. 167-171, figs.
- COCKERELL, T. D. A. A provisional List of the Fishes of Jamaica. Institute of Jamaica, Bulletin No. 1, 1892, 16 pp.
- COLLINGE, W. E. On the Preservation of Teleostean Ova. Ann. N. H. (6) x, 1892, pp. 228-230.
- COPE, E. D. The Vertebrata of the Tertiary and Cretaceous Rocks of the North-West Territory. Contr. Canad. Pal. iii, 1891, 25 pp., 14 pls.
- A Contribution to the Vertebrate Palæontology of Texas. P. Am. Phil. Soc. xxx, 1892, pp. 123-131.
- On some New and Little-known Palæozoic Vertebrates. *T. c.* pp. 221-229, pls. vii & viii.
- On the Phylogeny of the Vertebrata. *T. c.* pp. 278-281, figs.
- On a new Horizon of Fossil Fishes. Abstract, P. Am. Ass. 1891 (1892), p. 285.
- CROOK, A. R. Ueber einige fossile Knochenfische aus der mittleren Kreide von Kansas. Palæontogr. xxxix, 1892, pp. 107-124, pls. xv-xviii.
- CUÉNOT, L. Les Poissons commensaux et parasites. Le Nat. xiv, 1892, pp. 53-57, figs.
- CUNNINGHAM, J. T. Recent Additions to our Knowledge of the Natural History of some Devonshire Sea Fish. Rep. Tr. Devon Ass. xxiv, 1892, pp. 470-475.
- On the Rate of Growth of some Sea Fishes, and the Age and Size at which they begin to breed. J. Mar. Biol. Ass. (2) ii, 1892, pp. 222-264.
- Ichthyological Contributions. *T. c.* pp. 325-332, pl. xiv.
- Report on the Probable Ages of Young Fish Collected by Mr. Holt in the North Sea. *T. c.* pp. 344-362.
- On the Growth of Food-Fishes and their Distribution at different Ages. Rep. Brit. Ass. 1891, pp. 685 & 686 (1892).
- The Reproduction of the Pilchard. *T. c.* p. 686.

- [CUNNINGHAM, J. T.] Distribution of *Crystallogobius nilssonii*. Rep. Brit. Ass. 1891, p. 687.
- . The Growth of the Pilchard or Sardine. Nature, xlv, 1892, pp. 255 & 256.
- . Pilchards. *T. c.* p. 558.
- . The Evolution of Flat-Fishes. Nat. Sci. i, 1892, pp. 191-199 & 635-638.
- ®DAGUIN, A., & BARDIES, C. Faune de la Haute Marne. Les Poissons. Paris : 1892, 16mo, 89 pp.
- DAHL, F. Zur Frage der Bewegung fliegender Fische. Zool. Anz. xv, 1892, pp. 106-108.
- DAIMERIES, A. Notes Ichthyologiques. Bull. Soc. Mal. Belg. (4) vi, 1891, pp. lxxiii-lxxvii.
- DANILEWSKY, B. Zur Physiologie des Centralnervensystems vom *Amphioxus*. Arch. ges. Phys. li, 1892, pp. 393-400.
- DAVIS, J. W. On the Fossil Fish-Remains of the Coal-Measures of the British Islands. Part I. *Pleuracanthidae*. Sci. Tr. R. Dublin Soc. (2) iv, 1892, pp. 703-748, pls. lxxv-lxxiii.
- DEAN, B. Notes on the Common Catfish. Rep. U. S. Fish. Comm. xix, 1892, pp. 301-305, pl. —. [Quoted from Separate Copy.]
- . Pineal Fontanelle of Placoderm and Catfish. *T. c.* pp. 308-333, 14 pls. [Quoted from Separate Copy.]
- DOHRN, A. Die Schwann'schen Kerne der Selachierembryonen. Anat. Anz. vii, 1892, pp. 348-351.
- DOLLO, L. Sur la Morphologie des Côtes. Bull. Sci. Fr. Belg. xxiv, 1892, pp. 113-129.
- . Sur la Morphologie de la Colonne vertébrale. *T. c.* 19 pp. [separate copy].
- . Sur le *Lepidosteus suessoniensis*. *T. c.* 5 pp. [separate copy].
- DOUGLAS-OGILBY, J. On some undescribed Reptiles and Fishes from Australia. Rec. Austral. Mus. ii, 1892, pp. 23-26.
- DUBOIS, R. Contribution à l'étude du mécanisme respiratoire des Dipnoïques et de leur passage de la torpeur estivale à la vie active. Ann. Soc. L. Lyon (2) xxxix, 1892, pp. 65-72, figs.
- DUNCKER, G. Ein muthmasslicher Bastard zwischen *Pleuronectes platessa*, L., und *P. limanda*, L. Zool. Anz. xv, 1892, pp. 451-453.
- DUNN, M. Pilchards. Nature, xlv, 1892, pp. 511 & 512.
- EDINGER, L. Untersuchungen über die vergleichende Anatomie des Gehirns : 2. Das Zwischenhirn. Erster Teil : Das Zwischenhirn der Selachier und der Amphibien. Abh. Senck. Ges. xviii, 1892, 55 pp., 5 pls. Abstract in Anat. Anz. vii, 1892, pp. 472-476.

- EIGENMANN, C. H. The Fishes of San Diego, California. P. U. S. Nat. Mus. xv, 1892, pp. 123-178, pls. x-xviii.
- . *Branchiostoma elongatum*, Sundevall, at San Diego, California. Am. Nat. xxvi, 1892, p. 70.
- . On the Presence of an Operculum in the *Aspredinidæ*. T. c. p. 71.
- . The *Percopsidæ* of the Pacific Slope. Science, xx, 1892, pp. 233 & 234.
- EIGENMANN, C. H. & R. S. New Fishes from Western Canada. Am. Nat. xxvi, 1892, pp. 961-964.
- . Preliminary Descriptions of New Fishes from the North-West. Op. cit. xxvii, 1893, pp. 151-154.
- ETHERIDGE, R., JUN., & WOODWARD, A. S. On the Occurrence of the genus *Belonostomus* in the Rolling Downs Formation (Cretaceous) of Central Queensland. Tr. R. Soc. Vict. ii, 1892, pp. 1-7, pl. i.
- EVERMANN, B. W. Report on the Establishment of Fish-Cultural Stations in the Rocky Mountain Region and Gulf States. Bull. U. S. Fish Comm. f. 1891, pp. 1-90, pls. i-xxxvi (1892).
- . Description of a new Sucker, *Pantosteus jordani*. Op. cit. 1892, pp. 51-56, fig. (1893).
- EWART, J. C. The Electric Organ of the Skate.—Observations on the Structure, Relations, Progressive Development, and Growth of the Electric Organ of the Skate. Phil. Tr. clxxxiii (B), 1892, pp. 389-420, pls. xxvi-xxx. Abstract, P. R. Soc. l, 1892, pp. 474-476.
- . The lateral sense organs of Elasmobranchs. I. The sensory canals of *Læmargus*. II. The sensory canals of the common Skate, *Raia batis*. Zool. Anz. xv, 1892, pp. 116-120.
- FACCIOLÀ, L. Sull' esistenza di passaggio da alcune specie di Leptocefalidi agli adulti corrispondenti. Nat. Sicil. xi, 1893, pp. 144-148.
- FESTA, E. I Pesci del Piemonte. Boll. Mus. Zool. Tor. vii, 1892, No. 129, 125 pp.
- FORBES, H. O. On a Species of *Regalecus* or Great Oar-fish, caught in Okain's Bay. Tr. N. Z. Inst. xxiv, 1892, pp. 192-198.
- FUSARI, R. Sur les premières phases de développement des Téléostéens. Arch. Ital. Biol. xviii, 1892, pp. 204-239.
- GADEAU DE KERVILLE, H. Description d'un poisson et d'un oiseau monstreux. J. de l'Anat. Phys. xxviii, 1892, pp. 563-566, pl. xviii.
- GARDINER, E. J. L. Note on the Fish Remains from the Old Red Sandstone of Portishead. P. Bristol Soc. (2) vii, 1892, pp. 34 & 35.
- GARMAN, S. The Discoboli. *Cyclopteridæ*, *Liparopsidæ*, and *Liparididæ*. Mem. Mus. C. Z. xiv, No. 2, 1892, 96 pp., 13 pls.
- . The Distribution of Fishes. Science, xix, 1892, p. 187.

- GIARD, A. The Evolution of Flat-Fish. Nat. Sci. i, 1892, pp. 356-359.
- GILL, T. Notes on the *Tetraodontoidea*. P. U. S. Nat. Mus. xiv, 1892, pp. 705-720, pl. xxxiv.
- GRASSI, G. B., & CALANDRUCCIO, S. Le Leptocefalide e la loro trasformazione in Murenide. Atti Acc. Pontif. Lincei (5) i, 1892, Rend. pp. 375-379.
- GRIMM, G. Fischerei und Jagd in den russischen Gewässern. Uebersetzt von G. Josephy. Arch. f. Nat. lviii, i, 1892, pp. 191-208.
- GUITEL, F. Sur l'ovaire et l'œuf du *Gobius minutus*. C.R. cxiv, 1892, pp. 612-616, figs.
- . Sur les mœurs du *Clinus argenteus*. Op. cit. cxlv, 1892, pp. 295-297.
- . Observations sur les mœurs du *Gobius minutus*. Arch. Z. expér. (2) x, 1892, pp. 499-555, pl. xxii.
- GÜNTHER, A. List of the Species of Reptiles and Fishes collected by Mr. A. E. Pratt on the Upper Yang-tze-kiang and in the province Sze-Chuen, with Description of the New Species. Appendix II to PRATT'S "Snows of Tibet" (London: 1892, 8vo), pp. 238-250, pls. i-iv.
- . Description of a remarkable Fish from Mauritius, belonging to the Genus *Scorpaena*. P. Z. S. 1891, pp. 482 & 483, pl. xxxix.
- . Additional Note on the Occurrence of *Lichia vadiago* on the Cornish Coast. Ann. N. H. (6) x, 1892, pp. 335 & 336.
- HAASE, H. Beobachtungen über fliegende Fische. Zool. Anz. xv, 1892, p. 26.
- HASSE, C. Die Entwicklung der Wirbelsäule der Elasmobranchier. Dritte Abhandlung über die Entwicklung der Wirbelsäule. Z. wiss. Zool. lv, 1892, pp. 519-531, pl. xxi.
- . Die Entwicklung der Wirbelsäule der Dipnoi. Vierte Abhandlung über die Entwicklung der Wirbelsäule. T. c. 1893, pp. 533-542, pl. xxii.
- . Allgemeine Bemerkungen über die Entwicklung und die Stammesgeschichte der Wirbelsäule. Anat. Anz. viii, 1893, pp. 288 & 289.
- HATSCHKE, B. Zur Metamerie der Wirbeltiere. Nachtrag und Berichtigung. Op. cit. 1892, pp. 89-91.
- . Die Metamerie des *Amphioxus* und des *Ammocetes*. Verh. Anat. Ges. 1892, pp. 136-161, figs.
- HEINCKE, F. Variabilität und Bastardbildung bei Cyprinoiden. Leuckart Festschrift, 1892, pp. 64-73, figs., pl. viii.
- HERRICK, C. L. Notes upon the Anatomy and Histology of the Prosencephalon in Teleosts. Am. Nat. xxvi, 1892, pp. 112-120, pls. vii & vii.
1892. [VOL. XXIX.]

- [HERRICK, C. L.] Additional Notes on the Teleost Brain. *Anat. Anz.* vii, 1892, pp. 422-431, figs.
- HERZENSTEIN, S. Ichthyologische Bemerkungen aus dem Zoologischen Museum der Kaiserlichen Akademie Wissenschaften. *Mél. Biol.* xiii, 1892, pp. 219-235, fig., and *Bull. Pétersb.* (2) iii, 1892, pp. 49-65, fig.
- HILGENDORF, F. Neue Stör-Art von Nord-Japan, *Acipenser mikadoi*. *SB. nat. Fr.* 1892, pp. 98-100.
- HOFFMAN, H. A., & JORDAN, D. S. A Catalogue of the Fishes of Greece, with Notes on the Names now in use, and those employed by classical authors. *P. Ac. Philad.* 1892, pp. 230-285.
- HOFFMANN, C. K. Zur Entwicklungsgeschichte des Herzens und der Blutgefäße bei den Selachiern. Ein Beitrag zur Kenntniss des unteren Keimblattes. *Morph. JB.* xix, 1893, pp. 592-648, figs., pls. xxii-xxv.
- . Ueber die Entstehung der endothelialen Anlage des Herzens und der Gefäße bei Hai-Embryonen (*Acanthias vulgaris*). *Anat. Anz.* vii, 1892, pp. 270-273, figs.
- HOLMBERG, E. L. Sobre algunos Peces nuevos ó poco conocidos de la República Argentina. *Rev. Argent.* i, 1891, pp. 180-193.
- HOLT, E. W. L. On some Young Specimens of *Centrolophus pompilus* (Art.) from the Coast of Cornwall. *J. Mar. Biol. Ass.* (2) ii, 1892, pp. 265-267.
- . North Sea Investigations. *T. c.* pp. 216-219 & 363-393.
- HOPKINS, G. S. On the digestive tract of some North American Ganoids. Abstract. *P. Am. Ass.* xli, 1892, p. 197.
- HOWES, G. B. On the Arrangement of the Living Fishes, as based upon the Study of their Reproductive System. *Rep. Brit. Ass.* 1891, pp. 694 & 695 (1892).
- . On the Customary Methods of Describing the Gills of Fishes. *T. c.* p. 702.
- JAEKEL, O. Ueber *Dichelodus*, Gieb., und einige Ichthyodoruliten, eine Entgegnung an Herrn A. Smith Woodward. *JB. Mineral.* 1892, i, pp. 145-151, figs.
- . Ueber *Cladodus* und seine Bedeutung für die Phylogenie der Extremitäten. *SB. nat. Fr.* 1892, pp. 80-92, fig.
- . Ueber *Chalcodus permianus*. *T. c.* pp. 156-158.
- JORDAN, D. S., & DAVIS, B. M. A Preliminary Review of the Apodal Fishes or Eels inhabiting the waters of America and Europe. *Rep. U. S. Fish. Comm.* f. 1888, pp. 581-677, pls. lxxiii-lxxx (1892).
- KERMODE, P. M. C. Contributions to a Vertebrate Fauna of the Isle of Man. *Fish. Zool.* (3) xvii, 1893, pp. 65-70.

- KIRSCH, P. H. Notes on the Streams and Fishes of Clinton County, Kentucky, with a Description of a new Darter. Bull. U. S. Fish. Comm. f. 1890, pp. 289-292, fig. (1892).
- . Notes on a Collection of Fishes from the Southern Tributaries of the Cumberland River in Kentucky and Tennessee. *Op. cit.* 1891, pp. 259-268 (1893).
- KLAATSCH, H. Beiträge zur vergleichenden Anatomie der Wirbelsäule. I. Ueber den Urzustand der Fischwirbelsäule. Morph. JB. xix, 1893, pp. 649-680, fig., pl. xxvi.
- \*KLUNZINGER, C. B. Bodenseefische, deren Pflege und Fang. Stuttgart: 1892, 8vo, xii, 232 pp., figs.
- KNAUTHE, K. Ueber Melanismus bei Fischen. Zool. Anz. xv, 1892, p. 25.
- . Ichthyologische Notiz. *Op. cit.* xvi, 1893, pp. 109 & 110.
- KOLOMBATOVIC, G. *Blennius zvonimiri*, n. sp., Nova vrsta babice dalmatinskoga mora. Glasnik. Naravosl. Druztva, vii, 1892, pp. 107-112, pl. v.
- KUNSTLER, M. Sur la fécondation artificielle du *Cantharus griseus*. Act. Soc. L. Bord. (5) v, 1893, pp. 241-243.
- LATASTE, F. Sur les poissons vomis par les puits artésiens. Actes Soc. Sci. Chili, i, 1892, pp. xxxviii & xxxix.
- LENHOSSEK, M. v. Die Nervenendigungen in den Endknospen der Mundschleimhaut der Fische. Vorläufige Mittheilung. Festschr, Nat. Ges. Basel, 1892, pp. 92-100.
- . Beobachtungen an den Spinalganglien und dem Rückenmark von *Pristiurusembryonen*. Anat. Anz. vii, 1892, pp. 519-539, figs.
- LEYDIG, F. Integument brünstiger Fische und Amphibien. Biol. Centrabl. xii, 1892, pp. 205-221.
- . Blaufarbiger Wasserfrosch; Leuchtflecken der Ellritze. Zool. Gart. xxxiii, 1892, pp. 1-7.
- . Zur Kenntniss der Legeröhre des Bitterlings. *T. c.* pp. 129-133.
- . Springfrosch, *Rana agilis*; Ellritze, *Phoxinus phoxinus*. *T. c.* pp. 321-326.
- LIDTH DE JEUDE, T. W. On *Orthogoriscus nasus*, Ranzani. Notes Leyd. Mus. xiv, 1892, pp. 127-128, pl. v.
- LILLJEBORG, W. Sveriges och Norges Fiskar. Upsala: 3 vols. 8vo, 1884-91.
- Fascicle 8, concluding the work, issued 1891.
- LUCAS, A. H. S. A new species of Freshwater Fish from Lake Nigothoruk, Mount Wellington, Victoria. P. R. Soc. Vict. (2) iv, 1892, pp. 27 & 28.

- LUCAS, F. A. On *Carcharodon mortoni*, Gibbes. P. Biol. Soc. Washington, vii, 1892, pp. 151 & 152.
- LÜTKEN, C. F. Spolia Atlantica. Scopelini Musei Zoologici Universitatis Hauniensis. Bidrag til Kundskab om det aabne Havs Laxesild eller Scopeliner. Med et Tillæg om en anden pelagisk Fiskeslægt. Vid. Selsk. Skr. (6) vii, 1892, pp. 223-297, 3 pls.
- LWOFF, B. Ueber die Keimblätterbildung bei den Wirbeltieren. Biol. Centralbl. xiii, 1893, pp. 40-50, 76-81.
- MACPHERSON, H. A. A Vertebrate Fauna of Lakeland, including Cumberland and Westmoreland with Lancashire North of the Sands. Edinburgh: 1892, 8vo, 552 pp.
- MARCY, —. Des Mouvements de natation de la Raie. CR. cxvi, 1893, pp. 77-81, figs.
- MARION, F. Reproduction et croissance de la Sardine dans le golfe de Marseille durant la campagne 1891. C.R. Ass. Fr. Sci. 1891, i, pp. 238 & 239 (1892).
- MARTIN, R., & ROLLINAT, R. Catalogue des Reptiles, Batraciens, et Poissons du Département de l'Indre. Mém. Soc. Zool. v, 1892, pp. 30-45.
- MAXWELL, H. Notes on the Freshwater Fishes of the Solway Area. Ann. Scott. N. H. i, 1892, pp. 103 & 104.
- MCCORMICK, L. M. Descriptive List of the Fishes of Lorain County, Ohio. Bull. Oberlin Coll. Labor. No. 2, 1892, 34 pp., 14 pls.
- MCINTOSH, W. C. Notes from the St. Andrews Marine Laboratory. No. xiii. Ann. N. H. (6) x, 1892, pp. 97-108, pl. viii.
- MOJSISOVICS, A. v. Ueber eine auffällige (neue) Varietät des *Acipenser ruthenus*, L. SB. Ak. Wien, ci, i, 1892, pp. 328-330, pl. —.
- MOLLIER, S. Zur Entwicklung der Selachierextremitäten. Vorläufige Mitteilung. Anat. Anz. vii, 1892, pp. 351-365.
- MOREAU, E. Manuel d'Ichthyologie française. Paris: 1892, 8vo, 650 pp., 3 pls.
- MORRIS, C. The Origin of Lungs, a Chapter in Evolution. Anat. Anz. xxvi, 1892, pp. 975-986.
- NEWTON, E. T. Note on a new species of *Onychodus* from the Lower Old Red Sandstone of Forfar. Geol. Mag. (3) ix, 1892, pp. 51 & 52, fig.
- NITSCHKE, P. Die Zucht des Schleierschwanzes und des Teleskopfisches in Zimmer und Garten. Zool. Gart. xxxiii, 1892, pp. 289-300, 336-348.
- OLT, A. Lebensweise und Entwicklung des Bitterlings. Z. wiss. Zool. lv, 1893, pp. 543-575, pl. xxiii.

- OSTROUMOFF, A. Zoologische Excursion nach Mangyschlack und Basatschi (Russian text). Protok. obsch. estest. Kazan, 1889-90, Append. No. 113 (1890), 16 pp.
- OWSJANNIKOW, P. On the Embryology of the River-Lamprey. Translation. Ann. N. H. (6) xi, 1893, pp. 30-43.
- PERUGIA, A. Intorno ad alcuni pesci raccolti al Congo dal Capitano Giacomo Bove. Ann. Mus. Genov. (2) x, 1892, pp. 967-977, figs.
- . Descrizione di una nuova specie di *Myxus* raccolta nel Rio Senegal dal Cap. G. Capurro. Op. cit. xii, 1892, pp. 1007 & 1008.
- . Descrizione di due nuove specie di pesci raccolti in Sarawak dai Sig. G. Doria ed O. Beccari. T. c. pp. 1009 & 1010.
- PLATT, J. B. Fibres connecting the Central Nervous System and Chorda in *Amphioxus*. Anat. Anz. vii, 1892, pp. 282-284, figs.
- POHLIG, H. Altpermische Saurierführten, Fische und Medusen der Gegend von Friedrichroda i. Thür. Leuckart Festschrift, 1892, pp. 59-64, figs., pl. vii.
- POLLARD, H. B. On the Anatomy and Phylogenetic Position of *Polypterus*. Morph. JB., Anat. v, 1892, pp. 387-428, figs., pls. xxvii-xxx.
- . The Lateral Line System in Siluroids. T. c. pp. 525-551, pls. xxxv & xxxvi.
- POUCHET, G. Remarque sur deux Turbots à face nadirale pigmentée. C.R. Soc. Biol. (9) iv, 1892, pp. 200-202.
- PURVIS, G. C. On the Pineal Eye of *Lamna cornubica*, or Porbeagle Shark. P. Phys. Soc. Edinb. 1890-91, pp. 62-67, pl. — (1892).
- RABL, C. Ueber die Entwicklung des Venensystems der Selachier. Leuckart Festschrift, 1892, pp. 228-235, figs.
- . Ueber die Metamerie des Wirbeltierkopfes. Verh. Anat. Ges. 1892, pp. 104-135, figs., pl. ii.
- RAFFAELE, F. Ricerche sullo sviluppo del sistema vascolare nei Selacei. MT. z. Stat. Neap. x, 1892, pp. 441-479, pls. xxix-xxxi.
- RAMON Y CAJAL, S. La Retina de los Teleósteos y algunas observaciones sobre la de los vertebrados superiores. Ann. Soc. Esp. (2) i, 1892, pp. 281-305, figs.
- REIS, O. Zur Osteologie der Coelacanthinen. 1 Teil. Rumpfskelet, Knochen des Schädels und der Wangen, Kiemenbogenskelet, Schultergürtel, Becken, Integument und innere Organe. Inaugural Dissertation. Munich: 1892, 8vo, 39 pp., 2 pls.
- . Zur Osteologie und Systematik der Belonorhynchiden und Tetragonolepiden. Geogn. JH. iv, 1892, pp. 143-166.
- . Anhang über *Dorypterus*. T. c. pp. 167-170.

- [REIS, O.] Ueber die Zurechnung der Acanthodier zu den Selachiern. SB. nat. Fr. 1892, pp. 153–156. With remarks by O. JAEKEL, *t. c.* pp. 156–158.
- RETZIUS, G. Die sensiblen Nervenendigungen in der Haut des *Petromyzon*. Biol. Untersuch. (2) iii, 1892, pp. 37–40, pl. xiii.
- . Die Nervenendigungen in den Endknospen resp. Nervenbügeln der Fische und Amphibien. *Op. cit.* iv, pp. 33–36.
- . Ueber die sensiblen Nervenendigungen in den Epithelien bei den Wirbelthieren. *T. c.* pp. 37–44, pls. xi–xv.
- . Das Caudalskelet der *Myxine glutinosa*. Biol. Fören. iii, 1892, pp. 81–84, pl. iii.
- . Das hintere Ende des Rückenmarks und der Chorda dorsalis bei *Petromyzon fluviatilis*. *Op. cit.* iv, 1892, pp. 36–41, figs.
- ROHDE, E. Muskel und Nerv bei *Mermis* und *Amphioxus*. SB. Ak. Berlin, 1892, pp. 659–664.
- ROHON, J. V. Die Obersilurischen Fische von Oesel. I. Theil. *Thyestidae* und *Tremataspidae*. Mém. Ac. Pétersb. (7) xxxviii, 1892, No. 13, 88 pp., 2 pls.
- RÖSE, C. Ueber Zahnbau und Zahnwechsel der Dipnoer. Anat. Anz. vii, 1892, pp. 821–839, figs.
- RÜCKERT, J. Zur Entwicklungsgeschichte des Ovarialeies bei Selachiern. *T. c.* pp. 107–158, figs.
- . Ueber die Verdoppelung der Chromosomen im Keimbläschen des Selachiereies. *Op. cit.* viii, 1892, pp. 44–52, figs.
- RYDER, J. A. The Sturgeons and Sturgeon Industries of the Eastern Coast of the United States, with an Account of Experiments bearing upon Sturgeon Culture. Bull. U. S. Fish. Comm. viii, 1890, pp. 231–281, pls. xxxvii–lix.
- . On the Mechanical Genesis of the Scales of Fishes. P. Ac. Philad. 1892, pp. 219–224, figs., and Ann. N. H. (6) xi, 1893, pp. 243–248, figs.
- SAUVAGE, H. E. La faune ichthyologique du terrain permien français. C.R. cxvi, 1893, pp. 656 & 657.
- . Recherches sur les Poissons du Lias Supérieur de l'Yonne. Zone à Ciment de Vassy. Bull. Soc. Autun, iv, 1891, pp. 59–81, pls. vi–ix, and v, 1892, pp. 386–399, pls. xvi & xvii.
- SCHMIDT, F. Ueber neue silurische Fischfunde auf Oesel. JB. Mineral. 1893, i, pp. 99–101.
- SCHMIDT, L. Untersuchungen zur Kenntniss des Wirbelbaues von *Amia calva*. Z. wiss. Zool. liv, 1892, pp. 748–764, figs., pl. xxxiv.
- SCHULZE, E. Fauna piscium Germaniæ. II. Auflage. Königsberg: 1892, 8vo, 94 pp., figs.

- SCHULZE, F. E. Freie Nervenenden in der Epidermis der Knochenfische. SB. Ak. Berlin, 1892, pp. 87 & 88, fig.
- SEDGWICK, A. Notes on Elasmobranch Development. Q. J. Micr. Sci. xxxiii, 1892, pp. 559-586, pl. xxxv.
- SERVICE, R. Freshwater Fishes of the Solway Area. Ann. Scott. N. H. i, 1892, pp. 18-25.
- SIEGLIN, —. Einbürgerung fremder Nutzfische in Württemberg. JH. Ver. Württ. xlviii, 1892, pp. xxvii-xli.
- SIM, G. Occurrence of *Triglops murrayi*, Günther, on the East Coast of Scotland. Ann. Scott. N. H. i, 1892, p. 76.
- . Occurrence of *Sebastes viviparus*, Kroyer, off the East Coast of Scotland. Op. cit. ii, 1893, p. 47.
- SPENCER, W. B. Note on the Habits of *Ceratodus forsteri*. P. R. Soc. Vict. (2) iv, 1892, pp. 81-84.
- STEINDACHNER, F. Ueber einige neue und seltene Fischarten in den Sammlungen des k. k. naturhistorischen Hofmuseums. Anz. Ak. Wien, 1892, pp. 130-134, and Denk. Ak. Wien, lix, 1892, pp. 357-384, 6 pls.
- STÖHR, P. Die Entwicklung von Leber und Pankreas der Forelle. Anat. Anz. viii, 1893, pp. 205-208.
- STORMS, R. Note sur l'Ichthyologie fossile. Bull. Soc. Belg. Géol. v, 1891, pp. 114-128 & 142-157.
- . Sur le *Cybium* (*Enchodus*) *bleekeri*, du Terrain Bruxellien. Op. cit. vi, Mém. pp. 3-14, pl. i (1892).
- STRACHLY, O. Die Karyomitose bei abnormer Entwicklung des Forelleineies. MT. embr. Inst. Wien (2) v, 1892, pp. 20-22.
- THOMSON, G. M. Notes on Sea-Fishes. Tr. N. Z. Inst. xxiv, 1892, pp. 202-215.
- TRAQUAIR, R. H. On the British Species of *Asterolepidae*. P. Phys. Soc. Edinb. 1891-92, pp. 283-286 (1893).
- . On a New Palæoniscid Fish, *Myriolepis hibernicus*, from the Coal-Measures, co. Kilkenny, Ireland. Geol. Mag. (3) x, 1893, pp. 54-56, pl. iii.
- . Notes on the Devonian Fishes of Campbelltown and Scaumenac Bay in Canada. No. 2. T. c. pp. 145-149, figs.
- . Note on an abnormally developed Thornback (*Raia clavata*, L.). Ann. Scott. N. H. i, 1892, pp. 29 & 30, fig.
- . List of the type and figured Specimens in the "Powrie Collection" of Fossils. T. c. pp. 31-39.
- . On Malformed Trout from Scottish Waters. No. 1. T. c. pp. 92-103, pls. iii-v.
- . A new Fossil Fish from Dura Den. T. c. pp. 233-235.

- [TRAQUAIR, R. H.] An unusually Coloured Example of the Thornback (*Raia clavata*, Linn.). Ann. Scott. N. H. ii, 1893, p. 25, pl. i.
- TRIMEN, R. On the Occurrence of a rare Fish (*Lophotes cepedianus*) at the Cape of Good Hope. P. Z. S. 1891, pp. 483 & 484.
- VAILLANT, L. Remarques sur quelques Poissons du haut Tonkin. C.R. cxiv, 1892, pp. 1028 & 1029.
- . Sur le genre *Megapleuron*. T. c. pp. 1083 & 1084.
- . Sur les affinités du genre *Oreosoma*, Cuvier. Op. cit. cxvi, 1893, pp. 598-600.
- . Sur quelques Poissons rapportés du haut Tonkin par M. Pavie. Bull. Soc. Philom. (8) iv, 1892, pp. 125-127.
- . Notes Ichthyologiques. Op. cit. v, 1893, pp. 13-17.
- . Sur la possibilité du transport des galets dans l'appareil digestif des Poissons. Bull. Soc. Géol. (3) xx, 1892, pp. 111-113.
- VIRCHOW, H. Das Dotterorgan der Wirbelthiere. Z. wiss. Zool. liii, Suppl., 1892, pp. 161-206, pl. x.
- WERNER, F. Untersuchungen über die Zeichnung der Wirbelthiere. Morph. JB., Syst. vi, 1892, pp. 155-229, pls. vi-x.
- WHITEAVES, J. F. Contributions to Canadian Palæontology. Vol. I. Part IV. The Fossils of the Devonian Rocks of the Islands, Shores, or immediate vicinity of Lakes Manitoba and Winnipegosis. Geological Survey of Canada. Ottawa: 1892, 359 pp., 47 pls.
- WIEDERSHEIM, R. Das Gliedmassenskelet der Wirbelthiere, mit besonderer Berücksichtigung des Schulter- und Beckengürtels bei Fischen, Amphibien, und Reptilien. Jena: 1892, 8vo, 266 pp., figs., 17 pls.
- WIJHE, J. W. VAN. Ueber *Amphioxus*. Anat. Anz. viii, 1893, pp. 152-172.
- WILSON, E. B. On Multiple and Partial Development in *Amphioxus*. Op. cit. vii, 1892, pp. 732-740, figs.
- WITCHELL, C. A., & STRUGNELL, W. B. The Fauna and Flora of Gloucestershire. Stroud: 1892, 8vo, 301 pp.
- WOOD-MASON, J., & ALCOCK, A. Further Observations on the Gestation of Indian Rays; being Natural History Notes from H.M. Indian Marine Survey Steamer "Investigator." Series II, No. 2. P. R. Soc. I, 1892, pp. 202-209.
- WOODWARD, A. S. On the Skeleton of a Chimæroid Fish (*Ischyodus*) from the Oxford Clay of Christian Malford, Wiltshire. Ann. N. H. (6) ix, 1892, pp. 94-96.
- . On some Teeth of new Chimæroid Fishes from the Oxford and Kimmeridge Clays of England. Op. cit. x, 1892, pp. 13-16, pl. iii.
- . Doubly-armoured Herrings. T. c. pp. 412 & 413.

- [WOODWARD, A. S.] Note on a Case of Subdivision of the Median Fin in a Dipnoan Fish. *Ann. N. H.* (6) xi, 1893, pp. 241 & 242, fig.
- On the Lower Devonian Fish-Fauna of Campbelltown, New Brunswick. *Geol. Mag.* (3) ix, 1892, pp. 1-6, pl. i.
- Further Contributions to the Devonian Fish-Fauna of Canada. *T. c.* pp. 481-485, figs., pl. xiii.
- Description of the Cretaceous Saw-Fish, *Sclerorhynchus atavus*. *T. c.* pp. 529-534, fig., pl. xiv.
- Supplementary observations on some Fossil Fishes of the English Lower Oolites. *P. Geol. Ass.* xii, 1892, pp. 238-241, pl. iv.
- Remarks on the Lower Tertiary Fish-Fauna of Sardinia. *Rep. Brit. Ass.* 1891, pp. 634 & 635 (1892).
- The Evolution of Fins. *Nat. Sci.* i, 1892, pp. 28-35, figs.
- The Fore-runners of the Backboned Animals. *T. c.* pp. 596-602, figs.
- The Evolution of Sharks' Teeth. *T. c.* pp. 671-675, figs.
- WOOLMAN, A. J. New Fishes from Chihuahua, Mexico. *Am. Nat.* xxvi, 1892, pp. 259-261.
- YOUNG, M., & EAGLE CLARKE, W. On *Anarrhichas minor*, Olafsen, and its occurrence on the Aberdeenshire Coast. *Ann. Scott. N. H.* i, 1892, pp. 26-29, pl. i.
- ZENK, F. Ueber die Laichzeit des Aales. *Mitth. Oesterr. Fischereiver.* 1891, No. 39, and *Zool. Gart.* xxxiii, 1892, pp. 61 & 62.
- ZIEGLER, H. E., & F. Beiträge zur Entwicklungsgeschichte von *Torpedo*. *Arch. mikr. Anat.* xxxix, 1892, pp. 56-102, figs., pls. iii & iv.

## II.—GENERAL SUBJECT.

W. HAACKE & PECHUEL-LOESCHE have revised the volume dealing with Fishes in the new (third) edition of Brehm's Tierleben ; Leipzig & Vienna : 1892, 8vo, 517 pp., 146 figs., 11 pls., 1 map.

G. B. HOWES, *Rep. Brit. Ass.* 1891, p. 694 (1892), expresses his views on the arrangement of Fishes (*cf.* *ZOOL. REC.* xxviii, *Pisces*, p. 2).

E. D. COPE, *P. Am. Phil. Soc.* xxx, pp. 280 & 281, figs., remarks on the phylogeny of the Fishes.

R. WIEDERSHEIM, "Das Gliedmassenskelet der Wirbelthiere" (see p. 14) ; pp. 24-84 & 143-183 are devoted to the Fishes.

A. S. WOODWARD, *Nat. Sci.* i, 1892, pp. 28-35, figs., gives a summary of the state of our knowledge of the evolution of fins.

O. JAEKEL, *SB. nat. Fr.* 1892, pp. 80-92, also discusses the evolution of the limbs of Fishes.

C. HASSE, *Anat. Anz.* viii, 1893, pp. 288 & 289, summarises his views on the development and phylogeny of the vertebral column.

H. KLAATSCH, *Morph. JB.* xix, 1893, pp. 649-680, fig., pl. xxvi, contributes to the morphology and embryology of the vertebral column in Fishes.

L. DOLLO, *Bull. Sci. Fr. Belg.* xxiv, 1892 [quoted from separate copies], discusses the morphology of the vertebral column and ribs.

C. RABL, *Verh. Anat. Ges.* 1892, pp. 104-135, figs., pl. ii, discusses the metamery of the head in Vertebrates.

H. AYERS, *J. Morph.* vi, 1892, pp. 1-360, pls. i-xii, has a contribution to the morphology of the Vertebrate ear.

G. B. HOWES, *Rep. Brit. Ass.* 1891, p. 702, remarks on the customary methods of describing the gills of Fishes. Gills of the Marsipobranch-Plagiostome type are, for anatomical purposes, termed *Cystobranchiæ*, and those of the higher Teleosteans *Pectinobranchiæ*.

J. A. RYDER, *P. Ac. Philad.* 1892, pp. 219-224, figs., and *Ann. N. H.* (6) xi, 1893, pp. 243-248, figs., writes on the mechanical genesis of the scales of Fishes, and their segmental relation to the hard and soft parts.

C. MORRIS, *Am. Nat.* xxvi, 1892, pp. 975-986, writes on the air-bladder and the origin of lungs.

P. MITRÓPHANOPH, *Trav. Soc. Varsovie.* ii, 1892, 251 pp., 7 pls., has a paper, in Russian, dealing with the embryology of Fishes.

On the nerve-terminations in the epithelium of Fishes; G. RETZIUS, *Biol. Untersuch. N. F.* (2) iii, 1892, pp. 37-40, pls. xiii, & iv, 1892, pp. 33-44, pls. xi-xv.

On the nerve-terminations in the buccal epithelium of Fishes; LENHOSSEK, *Festschr. Nat. Ges. Basel*, 1892, pp. 92-100.

A. AGASSIZ, *Bull. Mus. C. Z.* xxiii, 1892, pp. 189-193, 1 pl., has a preliminary note on some modifications of the chromatophores of Fishes.

F. LEYDIG, *Biol. Centralbl.* xii, 1892, pp. 205-221, writes on the dermal excrescences of breeding Fishes, and, pp. 444-449, on the structure of the skin.

J. T. CUNNINGHAM, *Rep. Tr. Devon Ass.* xxiv, 1892, pp. 470-475, reviews recent additions to our knowledge of the life-history of some Devonshire Sea Fishes.

C. BOHR, *C.R.* cxiv, 1892, pp. 1560-1562, records his experiments on the secretion of oxygen in the air-bladder of Fishes.

H. HAASE, *Zool. Anz.* xv, 1892, p. 26, and F. DAHL, *t. c.* pp. 106-108, further discuss the movements of flying Fishes.

F. LATASTE, *Actes Soc. Sci. Chili*, i, 1892, pp. xxxviii & xxxix, remarks on Fishes expelled from artesian wells in France and the Algerian Sahara.

L. VAILLANT, *Bull. Soc. Géol.* (3) xx, 1892, pp. 111-113, remarks on stones transported in the digestive tract of Fishes.

L. CUÉNOT, *Le Nat.* xiv, 1892, pp. 53-57, figs., publishes a popular article on commensalism and parasitism among Fishes.

## III.—FAUNÆ.

## EUROPE.

"Vertebrate Fauna of Argyll and the Inner Hebrides" (Edinburgh : 1892, 8vo) ; J. A. HARVIE-BROWN & T. E. BUCKLEY devote pp. 219-234 to Fishes.

Solway : R. SERVICE, *Ann. Scott. N. H.* i, 1892, pp. 18-25, gives a list of the Freshwater Fishes of the Solway area. A few additions to the list by H. MAXWELL, *t. c.* pp. 103 & 104.

Isle of Man : P. M. C. KERNODE, *Zool.* (3) xvii, 1892, pp. 65-70, enumerates the Fishes.

"Vertebrate Fauna of Lakeland ;" H. A. MACPHERSON deals with the Fishes on pp. 466-526.

"The Fauna and Flora of Gloucestershire" (Stroud : 1892, 8vo) ; C. A. WITCHELL & W. B. STRUGNELL, *Pisces*, pp. 149-166.

Scandinavia : "Sveriges och Norges Fiskar" (Upsala : 8vo, 3 vols., 1884-91), by W. LILLJEBORG ; fascicle 8, concluding the work, was issued in 1891.

Russia in Europe : revised list of the Fishes ; O. GRIMM, *Arch. f. Nat.* lviii, 1, 1892, pp. 195-207.

France : Manual of French Ichthyology, E. MOREAU (Paris : 1892, 8vo, 650 pp., 3 pls) ; criticised by C. BELLOTTI, *Atti Soc. Ital.* xxxiv, 1892, pp. 19-35.

Dep. Haute Marne : Faune de la Haute Marne, Poissons ; A. DAGUIN & C. BARDIES (Paris : 1892, 16mo, 89 pp.).

Dep. Indre : R. MARTIN & R. ROLLINAT, *Mém. Soc. Zool.* v, 1892, pp. 38-45, enumerate the Fishes.

Germany : ERWIN SCHULZE brings out a new, illustrated edition of his synopsis of the Fishes of Germany (Königsberg : 1892, 8vo, 94 pp., 49 figs.).

River Main : L. BRUXBAUM, *Zool. Gart.* xxxiii, 1892, pp. 184-188, reports on the migrations of Fishes in this river during the spring of 1892.

Bodensee : C. B. KLUNZINGER, *Bodenseefische, deren Pflege und Fang* (Stuttgart : 1892, 8vo, xii & 232 pp., figs.).

Württemberg : on the introduction of foreign Fish to ; SIEGLIN, JH. *Ver. Württ.* xlvi, 1892, pp. xxvii-xli.

Piedmont : E. FESTA, *Bol. Mus. Zool. Tor.* vii, 1892, No. 129, describes the Fishes.

Greece : H. A. HOFFMAN & D. S. JORDAN, *P. Ac. Philad.* 1892, pp. 230-285, publish a catalogue of the Fishes, with notes on the names now in use and those employed by classical authors.

## ASIA.

Mangyschlak and Busatchi : A. OSTROUMOFF, *Protok. obsch. estest. Kazan*, 1889-90, Append. No. 113 (1890), gives an account, in Russian, of a zoological excursion to.

Upper Yang-tse-Kiang and Province Sze-Chuen : A. GÜNTHER gives a list of the Fishes collected by Mr. A. E. Pratt ; Appendix ii to PRATT'S "Snows of Tibet" (London : 1892, 8vo), pp. 243-250, pls. i-iv.

Upper Tonkin : L. VAILLANT, C.R. cxiv, 1892, pp. 1028 & 1029, and Bull. Soc. Philom. (8) iv, 1892, pp. 125 & 127, records some Fishes.

Muscat, East Coast of Arabia : G. A. BOULENGER, P. Z. S. 1892, pp. 133-136, has a third report on the Fishes obtained by Surgeon-Major Jayakar.

Laccadive Sea, Gulf of Manaar, and Coast of Coromandel : A. ALCOCK, Ann. N. H. (6) x, pp. 345-365, pl. xviii, reports on the bathybial Fishes obtained by the "Investigator," during the season of 1891-92.

## AFRICA.

Congo : A. PERUGIA, Ann. Mus. Genov. (2) x, 1892, pp. 967-977, figs., reports on a collection of Fishes.

## AMERICA.

Montana and Wyoming : B. H. EVERMANN, Bull. U. S. Fish. Comm. f. 1891, pp. 41-55 (1892), gives an annotated list of Fishes.

Ohio : L. M. McCORMICK, Bull. Oberlin Coll. Labor., No. 2, 1892, 34 pp., 14 pls., gives a descriptive list of the Fishes of Lorain County.

Kentucky : P. H. KIRSCH, Bull. U. S. Fish Comm. f. 1890, pp. 291 & 292, gives a list of the Fishes of Clinton County.

Kentucky and Tennessee : P. H. KIRSCH, *op. cit.* 1891, pp. 259-268 (1893), reports on a collection from the Southern tributaries of the Cumberland River.

Texas : B. H. EVERMANN, *t. c.* pp. 75-88, has notes on Fishes.

California : C. H. EIGENMANN, P. U. S. Nat. Mus. xv, 1892, pp. 123-178, pls. x-xviii, gives an account of his observations on the Fishes of San Diego, with special reference to the spawning habits, embryology and migrations.

Jamaica : T. D. A. COCKERELL has compiled a provisional list of the Fishes, published as Bulletin No. 1, by the Institute of Jamaica, 1892.

Matto-Grosso, Brazil : G. A. BOULENGER, Ann. N. H. (6) x, 1892, pp. 9-12, pls. i & ii, describes some new or little-known Fishes.

Argentina : E. L. HOLMBERG, Rev. Argent. i, 1891, pp. 180-193, describes new or little-known Fishes.

## NEW ZEALAND.

G. M. THOMSON, Tr. N. Z. Inst. xxiv, 1892, pp. 202-215, has notes on the occurrence, habits, weight, &c., of various Marine Fishes in New Zealand.

## IV.—PALÆONTOLOGY.

R. STORMS, Bull. Soc. Belg. Géol. v, 1891, pp. 114-128 & 142-157, reviews recent progress in fossil Ichthyology.

R. H. TRAQUAIR, Ann. Scott. N. H. i, 1892, pp. 31-39, gives a list of the type and figured specimens of fossil Fishes in the "Powrie Collection," now in the Edinburgh Museum.

British Islands: J. W. DAVIS, Sci. Tr. R. Dublin Soc. (2) iv, 1892, pp. 703-748, pls. lxxv-lxxiii, describes and figures the *Pleuracanthidæ* from the Coal Measures.

England: A. S. WOODWARD, P. Geol. Ass. xii, 1892, pp. 238-241, pl. iv, makes supplementary observations on some fossil Fishes of the Lower Oolites. E. J. L. GARDINER, P. Bristol Soc. (2) vii, 1892, pp. 34 & 35, has a note on Fish-remains from the Old Red Sandstone of Portishead.

France: H. E. SAUVAGE, C.R. cxvi, 1893, p. 656, remarks on the fossil Fish of the Permian.

Dep. Yonne: H. E. SAUVAGE, Bull. Soc. Autun, iv, 1891, pp. 59-81, pls. vi-ix, and *op. cit.* v, 1892, pp. 386-399, pls. xvi & xvii, publishes researches on the Fish of the Upper Lias.

Belgium: A. DAIMERIES, Bull. Soc. Mal. Belg. (4) vi, 1891, pp. lxxiii-lxxvii, describes fossil Fish-remains.

Isle of Oesel, Baltic: J. V. ROHON monographs the *Thyestidæ* and *Tremataspidae* of the Upper Silurian; Mém. Ac. Pétersb. (7) xxxviii, 1892, No. 13, 88 pp., 2 pls. F. SCHMIDT, JB. Mineral. 1893, pp. 99-101, reports on the discovery of New Silurian Fish-remains on the Isle of Oesel.

Italy: F. BASSANI, Atti Ist. Venet. (7) iii, 1892, pp. 1031-1045, has a note on Tertiary Fish-remains from Salcedo and Novale.

Sardinia: A. S. WOODWARD, Rep. Brit. Ass. 1891, p. 634 (1892), makes short remarks on the Lower Tertiary Fish fauna.

Canada: A. S. WOODWARD, Geol. Mag. (3) ix, 1892, pp. 1-6, pl. i, and pp. 481-485, pl. xiii, and R. H. TRAQUAIR, *op. cit.* x, 1893, pp. 145-149, figs., have notes on some Devonian Fish-remains. J. F. WHITEAVES, Contr. Can. Pal. i, pt. iv, pp. 353-356, has notes on the Fishes of the Devonian of Lakes Manitoba and Winnipeg. E. D. COPE describes some Fish-remains from the Oligocene or Lower Miocene beds of the Cypress Hills; *op. cit.* iii, 1891, pp. 1-4.

Pennsylvania: E. D. COPE, P. Am. Phil. Soc. xxx, 1892, pp. 221-229, pls. vii & viii, describes various new and little-known palæozoic Fish-remains, mostly from the Chemung beds.

Kansas: A. R. CROOK, Palæontogr. xxxix, 1892, pp. 107-124, pls. xv-xviii, describes some Teleosteans from the Chalk.

South Dakota: E. D. COPE, P. Am. Ass. 1891 (1892), p. 285, remarks on the discovery of Oligocene (?) Fish-remains in the Ree Hills.

## V.—REFERENCES, ARRANGED SYSTEMATICALLY.

## TELEOSTOMI.

## TELEOSTEI.

- C. L. HERRICK, *Am. Nat.* xxvi, 1892, pp. 112-120, pls. vii & viii, has notes on the anatomy and histology of the prosencephalon of Teleosteans. The same author, *Anat. Anz.* vii, 1892, pp. 422-431, figs., has additional notes on the Teleost brain.
- S. RAMON Y CAJAL, *An. Soc. Esp.* (2) i, 1892, pp. 281-305, figs., remarks on the retina of Teleosteans.
- F. E. SCHULZE, *SB. Ak. Berlin*, 1892, pp. 87 & 88, fig., has a note on nerve-terminations in the epidermis of Teleosteans.
- R. FUSARI, *Arch. Ital. Biol.* xviii, 1892, pp. 204-239, gives a French abstract of his researches on the early stages of development in Teleosteans.
- P. STÖHR, *Anat. Anz.* viii, 1893, pp. 205-208, writes on the development of the liver and pancreas in the Trout.
- W. L. CALDERWOOD, *J. Mar. Biol. Ass.* (2) ii, 1892, pp. 298-312, pls. xi & xii, contributes to our knowledge of the ovary and intra-ovarian egg in Teleosteans.
- E. R. BOYER, *Bull. Mus. C. Z.* xxiii, 1892, pp. 91-133, 8 pls., writes on the mesoderm in Teleosteans, and its share in the formation of the pectoral fin.
- J. T. CUNNINGHAM, *J. Mar. Biol. Ass.* (2) ii, 1892, pp. 222-264 & 344-362, writes on the rate of growth of some sea Fishes (Gadoids, Pleuronectoids, and Clupeoids), and the age and size at which they begin to breed; also, *t. c.* pp. 325-332, on a few larval forms of Sole and Mackerel.
- W. E. COLLINGE, *Ann. N. H.* (6) x, 1892, pp. 228-230, reports on the results of his method of preserving Teleostean ova.

## ACANTHOPTERYGII.

## PERCIDÆ.

- Lucioperca*, Cuv.: BOULENGER, *P. Z. S.* 1892, p. 411, gives a synopsis of the species, and describes and figures, pl. xxv, a specimen of *L. marina*, C. & V.
- Etheostoma cinereum*, Storer, redescribed by KIRSCH, *Bull. U. S. Fish Comm.* f. 1891, p. 264 (1893). *E. guentheri*, p. 962, Winnipeg and Iowa, and *quappella*, p. 963, Qu'Appelle, W. Canada, n. spp., EIGENMANN, *Am. Nat.* xxvi, 1892, p. 963. *E. scovellii*, n. sp., WOOLMAN, *t. c.* p. 260, Chihuahua, N. Mexico. *E. wrightii*, n. sp., MCCORMICK, *Bull. Oberlin Coll. Labor.*, No. 2, 1892, p. 30, Lorain County, Ohio. *E. obeyense*, n. sp., KIRSCH, *Bull. U. S. Fish Comm.* f. 1890, p. 292, fig. (1892), Kentucky.

- Siniperca scherzeri*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 130, and Denk. Ak. Wien, lix, 1892, p. 357, pl. i, fig. 1, Shanghai.
- Percalabrax japonicus*, C. & V.: on a large specimen; STEINDACHNER, Denk. Ak. Wien, lix, 1892, p. 359.
- Serranus dermopterus*, Schleg., redescribed and figured; *id. t. c.* p. 359, pl. ii, fig. 1.
- C. H. BOLLMAN, Rep. U. S. Fish. Comm. f. 1888, pp. 557-579, pls. lxxiii-lxxii (1891), reviews the N. American *Centrarchideæ*.

## SQUAMIPINNES.

- Toxotes microlepis*, Gthr., is distinct from *T. microlepis*, Blyth, which is renamed *T. blythii*; BOULENGER, Ann. N. H. (6) ix, 1892, p. 143.

## SPARIDÆ.

- Box lineatus*, n. sp., BOULENGER, P. Z. S. 1892, p. 134, Muscat, Arabia.
- Cuntharus griseus*, C. & V.: on artificial fecundation; KUNSTLER, Act. Soc. L. Bord. (5) v, 1893, p. 241.

## SCORPENIDÆ.

- Sebastes viviparus*, Kroy.: on its occurrence off the East Coast of Scotland; G. SIM, Ann. Scott. N. H. ii, 1893, p. 47. [The fish described as *S. norvegicus* by Sim is *Scorpena dactylopterus*.—REC.]
- Scorpena frondosa*, n. sp., GÜNTHER, P. Z. S. 1891, p. 482, pl. xxxix, Mauritius.
- Minous inermis*, Alcock: description of an Anthomedusoid commensal on this fish; ALCOCK, Ann. N. H. (6) x, 1892, p. 207.

## NANDIDÆ.

- Acharnes niederleini*, p. 181, Missiones, Argentina, and *chacoensis*, p. 182, Chaco, Argentina, n. spp., HOLMBERG, Rev. Argent, i, 1891.

## BERYCIDÆ.

- Oreosoma*, Cuv., is referred to the *Berycidæ*; VAILLANT, C.R. cxvi, 1893, p. 598.

## SCIENIDÆ.

- Sciæna albiflora*, Richards., (= *Pagrus macrophthalmus*, Basil.), p. 361, *amoyensis*, Blkr., p. 362, and *amblyiceps*, Blkr., p. 363, redescribed by STEINDACHNER, Denk. Ak. Wien, lix, 1892.

## CARANGIDÆ.

- Lichia vadiago*, Risso: on specimens from the Cornish Coast; GÜNTHER, Ann. N. H. (6) x, 1892, p. 335.

## STROMATEIDÆ.

*Centrolophus pompilus*, Art. : on some young specimens from the Coast of Cornwall ; HOLT, J. Mar. Biol. Ass. (2) ii, 1892, p. 265.

## SCOMBRIDÆ.

*Thynnus macropterus*, Schleg., = *T. albacora*, Lowe ; BOULENGER, P. Z. S. 1892, p. 135.

*Cybum* (*Enchodus*) *bleekeri*, Winkler (foss.), described and figured by STORMS, Mém. Soc. Belg. Géol. vi, 1892, p. 3, pl. i.

## COTTIDÆ.

*Triglops murrayi*, Gthr., recorded from the E. Coast of Scotland by G. SIM, Ann. Scott. N. H. i, 1892, p. 76.

*Cottus philonips* and *onychus*, n. spp., EIGENMANN, Am. Nat. xxvi, 1892, p. 963, W. Canada.

*Argyrocottus*, n. g., resembling *Melletes*, Bean, in the very long ventrals, but distinguished by the absence of cleft behind the last gill, of teeth on the palate, and of scales. *A. zanderi*, n. sp., HERZENSTEIN, Mém. biol. xiii, 1892, p. 219, Sachalien I.

## DISCOBOLI.

S. GARMAN brings out a monograph of these Fishes, which he divides into three families: *Cyclopteridæ*, *Liparopsidæ*, *Liparididæ* ; Mem. Mus. C. Z. xiv, No. 2, 1892, 96 pp., 13 pls.

*Cyclopteroides*, n. g., closely allied to *Cyclopterus*, for *C. gyrynops*, n. sp. ; GARMAN, t. c. p. 37, pl. xi, figs. 4-9, Alaska.

*Liparops*, n. g., for *Cyclopterus stelleri*, Pall. ; GARMAN, t. c. p. 42.

*Liparis*, Act. : the following species are figured by GARMAN, t. c. :—*L. agassizii*, Putn., pls. i-iii, *pulchellus*, Ayres, pl. iv, *mucosus*, Ayres, pl. v, *calliodon*, Pall., pl. vi, figs. 1-5, *antarctica*, Putn., pl. vi, figs. 6-10, *liparis*, L., pl. vii, figs. 1-5, and *montagui*, Don., pl. vii, figs. 6-20.

Remarks on the distribution of the *Cyclopteri* ; GARMAN, Science, xix, 1892, p. 187.

## GOBIIDÆ.

*Gobius minutus*, Gm. : extensive notes on variations of fin-rays, scaling and colour, sexual differences, and habits of this Fish, which is figured ; GUITEL, Arch. Z. expér. (2) x, 1892, p. 499, pl. xxii : on the ovary and eggs ; GUITEL, C.R. cxiv, 1892, p. 612. *G. becarii*, n. sp., PERUGIA, Ann. Mus. Genov. (2) xii, 1892, p. 1010, Sarawak.

*Crystallogobius nilssonii*, Gill : on its abundance at Plymouth ; J. T. CUNNINGHAM, Rep. Brit. Ass. 1891, p. 687 (1892).

## BLENNIIDÆ.

- Blennius zvonimiri*, n. sp., Kolombatovic, Glasnik Naravosl. Brustza, vii, 1892, p. 107, pl. v, Coast of Dalmatia.
- Clinus argenteus*, C. & V.: on nesting and oviposition; F. GUITEL, C.R. cxv, 1892, p. 295.
- Anarrhichas minor*, Olafs., figured, with notes on its occurrence on the Scottish Coast; M. YOUNG & W. EAGLE CLARKE, Ann. Scott. N. H. i, 1892, p. 26, pl. i.
- Blenniophidium*, n. g., allied to *Cebedichthys*; BOULENGER, P. Z. S. 1892, p. 583 (1893). *B. petropauli*, n. sp., *id. t. c.* p. 584, fig., Kamtschatka.

## MASTACEMBELIDÆ.

- Mastacembelus marmoratus*, n. sp., PERUGIA, Ann. Mus. Genov. (2) x, 1892, p. 968, Congo.

## MUGILIDÆ.

- Mugil alatus*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 133, and Denk. Ak. Wien, lix, 1892, p. 364, Madagascar.
- Myxus capurrii*, n. sp., PERUGIA, Ann. Mus. Genov. (2) xii, 1892, p. 1007, Senegal.

## GASTROSTEIDÆ.

- Gastrosteus aculeatus*, L.: Remarks on the variations of the lateral shields in specimens from Ostend Harbour; BOULENGER, Ann. N. H. (6) xi, 1893, p. 228.

## TRACHYPTERIDÆ.

- Regalecus grillii*, Lindr., redescribed by H. O. FORBES, Tr. N. Z. Inst. xxiv, 1892, p. 192.

## LOPHOTIDÆ.

- Lophotes cepedianus*, C. & V., recorded from the Cape of Good Hope by TRIMEN, P. Z. S. 1891, p. 483.

## INCERTÆ SEDIS.

- Pseudoscopelus*, n. g. (*Trachinidarum*?). Body naked; spinous dorsal short, soft dorsal and anal long; a ventral lateral line; mouth deeply cleft. *P. scriptus*, n. sp., LÜTKEN, Vid. Selsk. Skr. (6) vii, 1892, p. 285, pl. i, figs. 3-5, Bahamas.

*ACANTHOPTERYGII PHARYNGOGNATHI.*

## CHROMIDES.

*Chromis fasciatus*, n. sp., PERUGIA, Ann. Mus. Genov. (2) x, 1892, p. 970, Congo.

*Acara bartoni*, n. sp., BEAN, P. U. S. Nat. Mus. xv, 1892, p. 286, pl. xlv, fig. 3, San Luis Potosi, Mexico.

*Heros centralis*, n. sp., HOLMBERG, Rev. Argent. i, 1891, p. 183, Santiago del Estero, Argentina.

*Crenicichla saxatilis*, L., n. var., *semicineta*, STEINDACHNER, Denk. Ak. Wien, lix, 1892, p. 376, Bolivia.

*ANACANTHINI.*

## GADIDÆ.

J. T. CUNNINGHAM, Rep. Brit. Ass. 1891, p. 685, remarks on the growth of various British Gadoids, and their Distribution at different ages  
Also J. Mar. Biol. Ass. (2) ii, 1892, p. 222-264.

## OPHIDIIDÆ.

*Ammodytes lanceolatus* and *A. tobianus*: on the eggs and young stages; MCINTOSH, Ann. N. H. (6) x, 1892, p. 97.

*Lamprogrammus fragilis*, n. sp. (?), ALCOCK, t. c. p. 348, Bay of Bengal, 678 faths.

*Hephtocara*, n. g.: head large, with thin, smooth, uncrested bones, scaleless; no armature, but a weak opercular spine; body compressed, tapering, covered with deciduous cycloid scales; eye moderate; snout not overhanging the jaws; mouth with obliquely ascending cleft, and with the lower jaw prominent; villiform teeth in the jaws, palatines, and vomer; no barbel or hyoid filaments; gill-openings wide; gill-membranes separate; four gills; no pseudo-branchiæ; eight branchiostegals; lateral line indistinguishable; vertical fins confluent; pectoral fins entire; no ventral fins. *H. simum*, n. sp., ALCOCK, t. c. p. 349, pl. xviii, fig. 1, Gulf of Manaar, 902 faths.

## MACRURIDÆ.

*Macrurus macrolophus*, Alcock, figured by ALCOCK, Ann. N. H. (6) x, 1892, p. 351. *M. hextii*, Alc., and *wood-masoni*, Alc.: further notes; id. t. c. pp. 351 & 353. *M. œlorhynchus*, Risso: description of an anomalous specimen; HERZENSTEIN, Mém. biol. xiii, 1892, p. 223.

## PLEURONECTIDÆ.

W. C. MCINTOSH, Ann. N. H. (6) x, 1892, p. 102, remarks on the ova and larvæ of certain British Peuronectoids.

- E. W. L. HOLT, J. Mar. Biol. Ass. (2) ii, 1892, pp. 363-379, writes on the relation of size to sexual maturity in Pleuronectoids.
- J. T. CUNNINGHAM, Nat. Sci. i, 1892, pp. 191-199 & 635-638, and A. GIARD, *t. c.* pp. 356-359, discuss the evolution of Flat-Fishes.
- G. POUCHET, CR. Soc. Biol. (9) iv, 1892, pp. 200-202, remarks on Turbots with partially pigmented blind side.
- Pleuronectes*, L.: on an apparent hybrid between *P. platessa*, L., and *P. limanda*, L.; DUNCKER, Zool. Anz. xv, 1892, p. 451.
- Zeugopterus norvegicus*, Gthr.: note by J. T. CUNNINGHAM, J. Mar. Biol. Ass. (2) ii, 1892, p. 325.

## PHYSOSTOMI.

## SILURIDÆ.

- B. DEAN, Rep. U. S. Fish Comm. xix, 1892, pp. 308-333, 14 pls., has notes on the anatomy of the Siluroids, with special reference to the pineal fontanelle; a list is given of the characters in which the Fish of this family differ from the other Teleosteans.
- H. B. POLLARD, Morph. JB., Anat. v, 1892, pp. 525-551, pls. xxxv & xxxvi, describes the lateral line system in a few Siluroids of the genera *Clarias*, *Callichthys*, *Auchenaspis*, *Trichomycterus*, and *Chaetostomus*.
- T. W. BRIDGE & A. C. HADDON, P. R. Soc. lii, 1892, pp. 139-157, publish an abstract of their paper on the air-bladder and Weberian ossicles in the Siluroids.
- C. H. EIGENMANN, Am. Nat. xxvi, 1892, p. 71, corrects a previous statement that the operculum is absent in *Aspredo*.
- Diastatomycter*, Vaill., = *Hemisilurus*, Blkr.; VAILLANT, Bull. Soc. Philom. (8) v, 1893, p. 15.
- Macrones pluriradiatus*, n. sp., VAILLANT, *op. cit.* iv, 1892, p. 126, Upper Tonkin. *M. pratti*, n. sp., GÜNTHER, in Pratt's "Snows of Tibet," p. 245, pl. i, fig. B, Province of Sze-Chuen, China.
- Pseudobagrus eupogon*, n. sp., BOULENGER, Ann. N. H. (6) ix, 1892, p. 247, Shanghai.
- Neobagrus*, n. g., distinguished from *Pseudobagrus* by the small number (13) of anal rays, the rounded caudal, the absence of teeth on the palate, and the attachment of the gill-membranes to the isthmus. BELLOTTI, Atti Soc. Ital. xxxiv, 1892, p. 100. *N. fuscus*, n. sp., *id. t. c.* p. 101, fig., Yokohama, Japan.
- Rhineaster rhæas*, n. sp. (foss.), COPE, Contr. Canad. Pal. iii, 1891, p. 3, pl. i, fig. 3, Lower Miocene, Canada.
- Amiurus catus*, L., note and figure; B. DEAN, Rep. U. S. Fish Comm. xix, 1892, p. 302, pl. —. *A. cancellatus* and *macconnellii*, n. spp. (foss.), COPE, Contr. Canad. Pal. iii, 1891, pp. 3 & 4, pl. i, figs. 4-7, Lower Miocene, Canada.
- Amblyceps marginatus*, n. sp., GÜNTHER, in Pratt's "Snows of Tibet," p. 245, pl. ii, fig. A, Province of Sze-Chuen, China.

*Chiloglanis dybowskii*, n. sp., VAILLANT, CR. Soc. Philom. 12 Juin, 1892, p. 2, Oubanghi, W. Africa.

*Synodontis guentheri*, n. sp., VAILLANT, Bull. Soc. Philom. 1893 (8) v, p. 16, Nile. *S. notatus*, n. n. for *S. maculatus*, Vaill. nec Rüpp., *id. t. c.* p. 17.

*Peltura*, n. g. Head depressed; snout pointed; eye small, superior, in the posterior part of the head; mouth inferior, nearly terminal, toothless; lip thick, with small tubercles; six barbels, two belonging to the mandible; dorsal and anal short; a short adipose fin; a double series of imbricate scutes extend from the dorsal and anal along the back and belly, and becomes single on the caudal peduncle; ventrals and pectorals horizontal; branchial opening reduced to a mere cleft; a semicircle of small teeth on the vomer. *P. bovei*, n. sp., PERUGIA, Ann. Mus. Genov. (2) x, 1892, p. 972, fig., Congo.

*Pseudocheneis pavici*, n. sp., VAILLANT, Bull. Soc. Philom. (8) iv, 1892, p. 126, Upper Tonkin.

*Plecostomus pantherinus*, Kner, redescribed by BOULENGER, Ann. N. H. (6) x, 1892, p. 9. *P. cochliodon*, Kner; note by the same, *t. c.* p. 10.

*Loricaria evansii*, n. sp., BOULENGER, *t. c.* p. 10, pl. i, Matto Grosso, Brazil.

#### SCOPELIDÆ.

C. F. LÜTKEN, Vid. Selsk. Skr. (6) vii, 1892, pp. 223-297, 3 pls., brings out a revision of the Scopeloids preserved in the Copenhagen Museum.

*Rhinoscopelus*, n. subg., for *Scopelus coccoi*, Cocco, and allies; LÜTKEN, *t. c.* p. 242.

*Scopelus* (*Rhinoscopelus*) *andrea*, p. 245, fig., and *rarus*, p. 246, figs., n. spp., LÜTKEN, *ibid.*, Atlantic. *S. arcticus*, p. 249, fig., W. of Cape Horn, *affinis*, p. 252, fig., Atlantic, *sphengodes*, p. 253, fig., Atlantic, *gracilis*, p. 255, fig., Atlantic, *hygomii*, p. 256, fig., Atlantic, and *reinhardtii*, p. 257, fig., Atlantic, n. spp., *id. ibid.*

*Argyropelecus aculeatus*, Val., and *A. elongatus*, Esmark, redescribed by LÜTKEN, *t. c.* p. 282.

*Bathypterois insularis*, n. sp., ALCOCK, Ann. N. H. (6) x, 1892, p. 356, Laccadive Sea, 1140 faths.

*Alepocephalus blanfordii*, p. 357, Gulf of Manaar, 902 faths., and *eden-tulus*, p. 358, pl. xviii, fig. 2, Bay of Bengal, 475 faths., n. spp., ALCOCK, *t. c.*

*Xenodermichthys guentheri*, n. sp., ALCOCK, *t. c.* p. 359, pl. xviii, fig. 3, Bay of Bengal, 678 faths.

*Leptoderma macrops*, Vaill.: note by ALCOCK, *t. c.* p. 361.

#### CYPRINIDÆ.

F. HEINCKE, Leuckart Festschrift, 1892, pp. 65-73, figs., pl. viii, writes on variability and hybridisation in the German Cyprinoids.

- K. KNAUTHE, Zool. Anz. xv, 1892, p. 25, remarks on melanism in German Cyprinoids.
- Pantosteus*, Cope : notes on the various species, by EVERMANN, Bull. U. S. Fish Comm. f. 1892, pp. 51-56 (1893). *P. jordani*, n. sp., *id. t. c.* p. 51, fig., Upper Missouri Basin. *P. columbianus*, n. sp., EIGENMANN, Am. Nat. xxvii, 1893, p. 151, Oregon.
- Carassius auratus*, L. : on the reproduction and development of monstrous varieties ; NITSCHKE, Zool. Gart. xxxiii, 1892, p. 289.
- Carpio cantonensis*, n. sp. (hybrid between *Cyprinus carpio* and *Carassius auratus* ?), HEINCKE, Leuckart Festschrift, 1892, p. 70, pl. viii.
- Gymnodiptychus*, n. g., allied to *Diptychus*, Stdr. ; HERZENSTEIN, Mém. biol. xiii, 1892, pp. 225. *G. pachycheilus*, n. sp., *id. t. c.* p. 226, Central Asia.
- Barbus schlegelii*, Gthr., note by STEINDACHNER, Denk. Ak. Wien, lix, 1892, p. 370.
- Acanthogobio*, n. g., allied to *Gobio*, for *A. guentheri*, n. sp., HERZENSTEIN, Mém. biol. xiii, 1892, p. 228, Central Asia.
- Pseudogobio maculatus*, Gthr., and *rivularis*, Basil, redescribed and figured by STEINDACHNER, *t. c.* pp. 370 & 371, pl. i, figs. 3 & 4.
- Crossochilus fasciatus*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 130, and Denk. Ak. Wien, lix, 1892, p. 372, pl. iv, fig. 2, China.
- Pungtungia*, n. g., allied to *Pseudorasbora*, Blkr. ; HERZENSTEIN, *t. c.* p. 230. *P. herzi*, n. sp., *id. t. c.* p. 231, fig., Corea.
- Leuciscus phoxinus*, L. : on the phosphorescent spots ; LEYDIG, Zool. Gart. xxxiii, 1892, pp. 4 & 325. *L. gilli*, n. sp., EVERMANN, Bull. U. S. Fish Comm. f. 1891, p. 44, pl. xx (1892), Montana. *L. (Leucos) macedonicus*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 131, and Denk. Ak. Wien, lix, 1892, p. 377, pl. ii, fig. 2, Macedonia.
- Notropis cayuga atrocaudalis*, n. var., EVERMANN, Bull. U. S. Fish Comm. f. 1891, p. 76 (1892), Neches R., Texas. *N. nux*, p. 77, *nocomis*, p. 78, *fumeus*, p. 81, and *notemigonoides*, p. 81, n. spp., *id. t. c.*, Texas. *N. chihuahuana*, n. sp., WOOLMAN, Am. Nat. xxvi, 1892, p. 259, Chihuahua, N. Mexico. *N. albeolus*, p. 152, *heterolepis*, p. 152, *reticulatus*, p. 152, and *scopiferus*, p. 153, n. spp., EIGENMANN, Am. Nat. xxvii, 1893, Western Canada.
- Opsopoeodus osculus*, n. sp., EVERMANN, Bull. U. S. Fish Comm. f. 1891, p. 82 (1892), Texas.
- Algansea dugesi*, n. sp., BEAN, P. U. S. Nat. Mus. xv, 1892, p. 283, pl. xlv, fig. 1, Guanajuato, Mexico.
- Agosia falcata*, p. 153, and *shuswap*, p. 154, n. spp., EIGENMANN, Am. Nat. xxvii, 1893, Western Canada.
- Rhodeus amarus*, L. : on its habits and development ; A. OLT, Z. wiss. Zool. lv, 1893, p. 543, pl. xxiii : on the urogenital tube ; LEYDIG, Zool. Gart. xxxiii, 1892, p. 129.
- Acanthorhodeus tonkinensis*, n. sp., VAILLANT, Bull. Soc. Philom. (8) iv, 1892, p. 127, Upper Tonkin.

- Achilognathus guichenoti*, Blkr., redescribed by STEINDACHNER, Denk. Ak. Wien, lix, 1892, p. 367. *A. coreanus*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 133, and *t. c.* p. 366, Corea.
- Opsariichthys bidens*, Gthr., redescribed by STEINDACHNER, *t. c.* p. 368.
- Chanodichthys affinis*, n. sp., VAILLANT, Bull. Soc. Philom. (8) iv, 1892, p. 127, Upper Tonkin.
- Leucaspis delineatus*, Sieb.: on malformed specimens; KNAUTHE, Zool. Anz. xvi, 1893, p. 109.
- Homaloptera fimbriata*, Gthr., figured by GÜNTHER, in Pratt's "Snows of Tibet," pl. iii, fig. A. *H. abbreviata*, n. sp., *id. t. c.* p. 248, pl. iii, fig. B, Province of Sze-Chuen, China.
- Nemachilus sturanyi*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 131, and Denk. Ak. Wien, lix, 1892, p. 378, pl. ii, fig. 3, Macedonia.
- Botia pratti* and *superciliaris*, n. spp., GÜNTHER, in Pratt's "Snows of Tibet," p. 250, pl. iv, Province of Sze-Chuen, China.
- Eucirrichthys*, n. g., allied to *Acanthophtalmus* and *Apua*. Body cylindrical, elongate, slender; mouth with pendant lip; eight barbels at the end of the snout, six of which are maxillary; a minute spine below the eye; dorsal far back, with the last ray just above the first anal ray. *E. doriae*, n. sp., PERUGIA, Ann. Mus. Genov. (2) xii, 1892, p. 1009, Sarawak.

## CHARACINIDÆ.

- Curimatus nitens*, p. 184, and *conspersus*, p. 185, n. spp., HOLMBERG, Rev. Argent. i, 1891, Rio Paraguay.
- Prochilodus platensis*, n. sp., HOLMBERG, *t. c.* p. 186, Rio de la Plata, Buenos Ayres.
- Leporinus solarü*, Holmb., redescribed by HOLMBERG, *t. c.* p. 187.
- Alestes brevipinnis*, n. sp., PERUGIA, Ann. Mus. Genov. (2) x, 1892, p. 975, Congo.
- Nannathiops unitaniatus*, Gthr., has ctenoid scales; VAILLANT, Bull. Soc. Philom. (8) v, 1893, p. 13, fig.
- Brycon (Chalcinopsis) alburnus*, Gthr., and *dentex*, Gthr., redescribed by STEINDACHNER, Denk. Ak. Wien, lix, 1892, pp. 374 & 375.
- Tetragonopterus (Hemibrycon) polyodon*, Gthr., redescribed, *id. t. c.* p. 375. *T. lineatus*, Stdr., = *T. lineatus*, Perugia; *T. anomalus*, Stdr., = *T. nigripinnis*, Perugia, *id. t. c.* p. 376.
- T. correntinus*, p. 188, Rio Parana, Corrientes, and *erythropterus*, p. 189, Rio de la Plata, n. spp., HOLMBERG, Rev. Argent. i, 1891. *T. moorii*, n. sp., BOULENGER, Ann. N. H. (6) x, 1892, p. 11, pl. ii, fig. 1, Matto Grosso, Brazil.
- Brachychalcinus*, n. g., intermediate between *Tetragonopterus*, Cuv., and *Luetkenia*, Stdr., but with a movable spine, directed forward, in front of the dorsal fin; BOULENGER, *t. c.* p. 11. *B. retrospina*, n. sp., *id. t. c.* p. 12, pl. ii, fig. 2, Matto Grosso, Brazil.
- Piabuca melanostoma*, n. sp., HOLMBERG, *t. c.* p. 192, Argentina.

- Myletes mesopotamicus*, Holmb., redescribed ; HOLMBERG, Rev. Argent. i, 1891, p. 193.
- Bergia altipinnis*, Stdr., = *Pseudocorynopoma doriae*, Perugia ; BOULENGER, Ann. N. H. (6) x, 1892, p. 12 ; STEINDACHNER, Denk. Ak. Wien, lix, 1892, p. 376.
- Chalcinopelecus*, n. g. [= *Pseudocorynopoma*, Perugia.—REC.], for *C. argentinus*, n. sp., HOLMBERG, t. c. p. 190, Argentina.

## CYPRINODONTIDÆ.

- Characodon variatus*, Bean : note by BEAN, P. U. S. Nat. Mus. xv, 1892, p. 286.
- Haplochilus dayi*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 131, and Denk. Ak. Wien, lix, 1892, p. 376, pl. i, fig. 2, Ceylon.
- Fundulus pallidus*, n. sp., EVERMANN, Bull. U. S. Fish Comm. f. 1891, p. 84, pl. xxxv (1892), Texas. *F. robustus*, n. sp., BEAN, P. U. S. Nat. Mus. xv, 1892, p. 285, pl. xlv, fig. 2, Mexico.
- Zygonectes funduloides*, p. 85, pl. xxxv, fig. 3, *pulvereus*, p. 85, pl. xxxvi, fig. 1, and *jenkinsi*, p. 86, pl. xxxvi, fig. 2, n. spp., EVERMANN, t. c., Texas.

## GALAXIIDÆ.

- Galaxias nigothoruk*, n. sp., LUCAS, P. R. Soc. Vict. (2) iv, 1892, p. 28, Lake Nigothoruk, Gippsland, Victoria.

## STERNOPTYCHIDÆ.

- Diplophos tania*, Gthr., redescribed and figured by LÜTKEN, Vid. Selsk. Skr. (6) vii, 1892, p. 278, pl. ii, figs. 1-3.
- Gonostoma microdon*, Gthr. (?) : note on, and figure of a specimen referred to this species ; LÜTKEN, t. c. p. 280, pl. iii, figs. 4 & 5. *G. elongatum*, Gthr. : note by ALCOCK, Ann. N. H. (6) x, 1892, p. 354.
- Chauliodus pammelas*, n. sp., ALCOCK, t. c. p. 355, Laccadive Sea, 1370 faths.

## STOMIATIDÆ.

- Astronesthes*, Rich. : remarks on the three species of this genus ; LÜTKEN, Vid. Selsk. Skr. (6) vii, 1892, p. 273.
- Photostomias guernei*, Coll. : note by LÜTKEN, t. c. p. 280, fig.

## SALMONIDÆ.

- H. BLANC, Bull. Soc. Vaud. (3) xxvii, 1892, pp. 272-275, has a preliminary note on the maturation and fecundation of Trout ova.
- O. STRACHLY, MT. Embr. Inst. Wien (2) v, 1892, pp. 20-22, has a note on abnormal development of the Trout ovum.

- Salmo fario*, L. : R. TRAQUAIR, Ann. Scott. N. H. i, 1892, p. 92, pls. iii-v, describes and figures malformed specimens from Scottish waters.
- S. ohridanus*, n. sp., STEINDACHNER, Anz. Ak. Wien, 1892, p. 132, and Denk. Ak. Wien, lix, 1892, p. 23, pl. iii, figs. 1-3, Macedonia.
- Coregonus coulterii*, n. sp., EIGENMANN, Am. Nat. xxvi, 1892, p. 961, Rocky Mountains.

## PERCOPSIDÆ.

Remarks by EIGENMANN, Science, xx, 1892, p. 233.

*Columbia*, n. gen., allied to *Percopsis*, Ag., but dorsal and anal each with two very strong spines, scales most strongly ctenoid on anterior part of body, and posterior margin of preopercle with a few short but strong spines. *C. transmontana*, n. sp., *id. t. c.* p. 234, Umatilla, Columbia River.

## CLUPEIDÆ.

- Clupea pilchardus*, L. : on its growth ; J. T. CUNNINGHAM, Nature, xlv, 1892, pp. 255-558 ; M. DUNN, *t. c.* p. 511 : on its growth in the Mediterranean ; MARION, CR. Ass. Fr. Sci. 1891, p. 228 : on its reproduction ; J. T. CUNNINGHAM, Rep. Brit. Ass. 1891, p. 686 (1892).
- Hyperlophus*, n. g., distinguished by the dorsal serrature, for *Clupea spratelloides*, n. sp., DOUGLAS-OGILBY, Rec. Austral. Mus. ii, 1892, p. 24, Coast of New South Wales. A. S. WOODWARD, Ann. N. H. (6) x, 1892, p. 412, points out that this doubly-armed herring falls in the genus *Diplomystus*, Cope, established for Cretaceous and early Tertiary species.
- Pellonula vorax*, Gthr. : note by PERUGIA, Ann. Mus. Genov. (2) x, 1892, p. 977.

## HALOSAURIDÆ.

- Halosaurus parvipennis*, n. sp., ALCOCK, Ann. N. H. (6) x, 1892, p. 362, Laccadive Sea, 865-880 faths.

## SAURODONTIDÆ.

- Ichthyodectes anaides*, Cope (foss.) : notes by CROOK, Palæontogr. xxxix, 1892, p. 111, pl. xv. *I. polymicrodus*, n. sp. (foss.), *id. t. c.* p. 112, pl. xvi, Chalk of Kansas.
- Portheus molossus*, Cope : notes by CROOK, *t. c.* p. 114, pl. xviii.

## MURENIDÆ.

- D. S. JORDAN & B. M. DAVIS, Rep. U. S. Fish. Comm. f. 1888, pp. 581-677, pls. lxxiii-lxxx (1892), review the Apodal Fishes inhabiting the waters of America and Europe.

- G. B. GRASSI & S. CALANDRUCCIO, Atti Acc. Pontif. Lincei (5) i, 1892, Rend. pp. 375-379, write on the transformation of *Leptocephali* into *Muraenoids*.
- Anguilla vulgaris*, Cuv.: on an extraordinary passage of Eels in the Main; BUXBAUM, Zool. Gart. xxxiii, 1892, p. 20: on its breeding season; ZENK, t. c. p. 61.
- Uroconger vicinus*, Vaill.: note on the stomach; ALCOCK, Ann. N. H. (6) x, 1892, p. 363.
- Rabula*, n. subg. for the species of *Gymnothorax* which have the dorsal fin inserted behind the head; JORDAN & DAVIS, t. c. p. 590.
- Quassiremus*, n. g. for *Ophichthys evionthias*, Jord. & Bollm.; JORDAN & DAVIS, t. c. p. 622.
- Scytalichthys*, n. subg. for *Ophichthys miurus*, Jord. & Gilb.; JORDAN & DAVIS, t. c. p. 635.
- Nettastoma melanurum*, Raf.: note on its larval (*Leptocephalus longirostris*, Kaup; *Hyoprorus messanensis*, Köll.) and adult characters; FACCIOLÀ, Nat. Sicil. xi, 1893, p. 144.
- Gavialiceps microps*, Alcock (? = *Nemichthys infans*, Vaill. nec Gthr.): further notes by ALCOCK, t. c. p. 364.
- Venefica*, n. g. for *Nettastoma procerum*, Goode & Bean; JORDAN & DAVIS, t. c. p. 651.
- Avocettina*, n. g. for *Nemichthys infans*, Gthr.; JORDAN & DAVIS, t. c. p. 655.
- Ilyophis*, n. g., type of a new family, *Ilyophididae*, intermediate between *Simenchelys* and *Synaphobranchus*; JORDAN & DAVIS, t. c. p. 670.
- I. brunneus*, n. sp., *iid.* t. c. p. 671, Galapagos Is.
- Ahlia*, n. g. for *Myrophis egmontis*, Jord.; JORDAN & DAVIS, t. c. p. 639.
- Myrophis frio*, n. sp., JORDAN & DAVIS, t. c. p. 640, Coast of Brazil.
- Gordichthys*, n. g., allied to *Muraenesox*, JORDAN & DAVIS, t. c. p. 644; *G. irreritus*, n. sp., *iid.* t. c., Gulf of Mexico.
- Xenomystax*, n. g., allied to *Muraenesox*; JORDAN & DAVIS, t. c. p. 648.
- X. atrarius*, n. sp., *iid.* t. c. p. 649, off Coast of Ecuador, 401 faths.
- Chlopsis equatorialis*, n. sp., JORDAN & DAVIS, t. c. p. 650, off Coast of Ecuador, 401 faths.

### PLECTOGNATHI.

- Balistes aureolus*, Richards., redescribed by HERZENSTEIN, Mém. biol. xiii, 1892, p. 233.
- Ostracion meretrix*, n. sp. (foss.), DAIMERIES, Bull. Soc. Mal. Belg. (4) vi, 1891, p. lxxv, Eocene, Brussels.
- T. GILL, P. U. S. Nat. Mus. xiv, 1892, pp. 705-720, pl. xxxiv, has notes on the Tetradons, which group he raises to the rank of a superfamily, *Tetraodontoidea*, divided into three families, viz.: *Chone-rhinidae*, *Canthigasteridae*, and *Tetraodontidae*; the latter is again divided into two subfamilies, viz., *Tetraodontinae* and *Colomesinæ*.
- Orthogoriscus nasus*, Ranz., described and figured by VAN LIDTH DE JEUDE, Notes Leyd. Mus. xiv, 1892, p. 127, pl. v.

## GANOIDEI.

- G. S. HOPKINS gives an abstract of a paper on the digestive tract of some N. American Ganoids ; P. Am. Ass. xli, 1892, p. 197.
- L. SCHMIDT, Z. wiss. Zool. liv, 1892, pp. 748-764, figs., pl. xxxiv, deals with the morphology of the vertebral column of *Amia calva*.
- Amia whiteavesiana* and *macrospondyla*, n. spp. (foss.), COPE, Contr. Canad. Pal. iii, 1891, p. 2, pl. i, figs. 1 & 2, Lower Miocene, Canada. *A. kehreri*, n. sp. (foss.), ANDREAE, Verh. Ver. Heidelb. (2) v, 1893, p. 9, Lower Miocene, Messel, near Darmstadt.
- Caturus*, Ag. (foss.): notes by SAUVAGE, Bull. Soc. Autun, iv, 1891, pp. 63-81, pls. vi-ix. *C. gigas*, p. 74, pl. vii, and *retrodorsalis*, p. 79, pl. ix, n. spp., *id. ibid.*, Upper Lias, Yonne, France. *C. chaperi*, Sauv., and *stenoura*, Sauv., figured, pls. vi & viii.
- Leptolepis affinis*, p. 389, pl. xvi, and *autissiodorensis*, p. 393, pl. xvi, n. spp., SAUVAGE, Bull. Soc. Autun, v, 1892, Upper Lias, Yonne, France.
- Lepidopterus*, n. g., allied to *Lepidotus*, for *L. crassus*, n. sp. (foss.); POHLIG, Leuckart Festschrift, 1892, p. 63, pl. vii, fig. 3, Permian of Friedrichroda, Thuringia.
- Belonostomus sweeti*, n. sp. (foss.), R. ETHERIDGE, JUN., & A. S. WOODWARD, Tr. R. Soc. Vict. ii, 1892, p. 1, pl. i, Cretaceous of Central Queensland.
- Pholidophorus gaudryi*, n. sp., SAUVAGE, Bull. Soc. Autun, v, 1892, p. 398, pl. xvii, Upper Lias, Yonne, France.
- Ctenolepis cyclus*, Ag. (foss.): figures of typical specimens ; A. S. WOODWARD, P. Geol. Ass. xii, 1892, pl. iv, figs. 5-8.
- Lepidosteus suessoniensis*, Gerv. (foss.), is a Fish, not a Reptile as stated by Lemoine ; DOLLO, Bull. Sci. Fr. Belg. xxiv, 1892 [quoted from separate copy].
- Tetragonolepis*, Bronn (foss.), is regarded as the type of a new family, *Tetragonolepidæ*, by REIS, Geogn. JH. iv, 1892, p. 160.
- Colobodus*, Ag. (foss.): remarks by MONTAGU BROWN, Rep. Brit. Ass. 1891, p. 644 (1892).
- Microdus dumbelii*, n. sp. (foss.), COPE, P. Am. Phil. Soc. xx, 1892, p. 128, Lower Cretaceous (?) of Texas.
- Mesodon rugulosus*, Ag. (foss.): note by A. S. WOODWARD, P. Geol. Soc. xii, 1892, p. 239, pl. iv, figs. 2-4.
- Dorypterus*, Germ. (foss.) ; notes by REIS, Geogn. JH. iv, 1892, p. 167.
- Acipenser*, L.: on the Sturgeons of the East Coast of the United States ; RYDER, Bull. U. S. Fish Comm. viii, 1890, p. 231, pls. xxxvii-lix. *A. ruthenus*, L.: on a remarkable new variety : A. v. MOJSISOVICS, SB. Ak. Wien, ci, i, 1892, p. 328, pl. —. *A. mikadoi*, n. sp., HILGENDORF, SB. nat. Fr. 1892, p. 98, N. Japan.
- Myriolepis hibernicus*, n. sp. (foss.), TRAQUAIR, Geol. Mag. (3) x, 1893, p. 54, pl. iii, Coal Measures, co. Kilkenny, Ireland.
- Amblypterus traquairi*, n. sp. (foss.), POHLIG, Leuckart Festschrift, 1892, p. 63, pl. vii, fig. 4, Permian of Friedrichroda, Thuringia.

- O. M. REIS, Geogn. JH. iv, 1892, p. 157, discusses the systematic position of the *Belonorhynchidae*.  
*Saurichthys striolatus*, Bronn, *apicalis*, Ag., and *mougeoti*, Ag. (foss.); notes, *id. t. c.* p. 148, figs. *S. gypsophilus*, n. sp., *id. t. c.* p. 153, fig., Keuper of Franconia.  
*Saurorhynchus*, n. g. for *Belonostomus acutus*, Ag. (foss.), REIS, *t. c.* p. 145.

## CROSSOPTERYGII.

- H. B. POLLARD, Morph. JB., Anat. v, 1892, pp. 387-428, figs., pls. xxvii-xxx, has a paper on the anatomy and phylogenetic position of *Polypterus*, which is regarded as representing the ancestral form of the Stegocephalous Batrachians.  
O. M. REIS, Inaugural Dissertation, Munich, 1892 (*cf.* p. 11), describes the osteology of the *Celacanthidae*.  
*Onychodus scoticus*, n. sp., E. T. NEWTON, Geol. Mag. (3) ix, 1892, p. 51, Old Red Sandstone of Forfar, Scotland.  
*Gyroptychius heddlei*, n. sp., TRAQUAIR, Ann. Scott. N. H. i, 1892, p. 233, Lower Old Red Sandstone, Dura Den, Scotland.  
*Megalichthys macropomus*, n. sp. (foss.), COPE, P. Am. Phil. Soc. xxx, 1892, p. 226, pl. viii, Carboniferous, Kansas.  
*Holoptychius* ? *filosus*, n. sp. (foss.), COPE, *t. c.* p. 228, pl. vii, fig. 3, Devonian, Pennsylvania.

## DIPNOI.

- C. RÖSE, Anat. Anz. vii, 1892, pp. 821-839, figs., writes on the teeth of the *Dipnoi*.  
C. HASSE, Z. wiss. Zool. lv, 1893, pp. 533-542, pl. xxii, deals with the development of the vertebral column in the *Dipnoi*.  
B. DEAN, Rep. U. S. Fish. Comm. xix, 1892, pp. 309-314, writes on the pineal fontanelle of *Dinichthys*, and compares the Placoderms and Siluroids.  
P. BURCKHARDT brings out a work on the Central Nervous System of the *Dipnoi* (Berlin: 1892, 8vo, 64 pp., 4to atlas, 5 pls.). Abstracts of his researches in Verh. deutsch. Zool. Ges. ii, 1892, pp. 92-95, and SB. nat. Fr. 1892, pp. 23-25.  
R. DUBOIS, Ann. Soc. L. Lyon (2) xxxix, 1892, pp. 65-72, figs., writes on the mechanism of the respiration in the *Dipnoi* and the passage from the torpid to the active condition.  
*Ceratodus forsteri*, Krefft: notes on the habits; W. B. SPENCER, Pr. R. Soc. Vict. (2) iv, 1892, p. 81. *C. (Meglapteron) rochei*, Gaudry (foss.): note on its scales; VAILLANT, C.R. cxiv, 1892, p. 1083.  
*Coccosteus macromus*, n. sp. (foss.), COPE, P. Am. Phil. Soc. xxx, 1892, p. 225, Devonian, Pennsylvania. *C. canadensis*, n. sp. (foss.), A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 483, pl. xiii, fig. 2, Upper Devonian, Scaumenac Bay, Canada. *C. cuyahogæ*, n. sp. (foss.), CLAYPOLE, Am. Geol. xi, 1893, p. 167, figs., Devonian of Ohio.

- Aspidichthys* (?) *nobilis*, n. sp. (foss.), WHITEAVES, Contr. Can. Pal. i, pt. iv, p. 354, pl. xlvii, fig. i, Devonian, South Manitou I., Lake Winnipeg.
- Phlyctænaspis acadica*, Whiteaves : notes and figures by A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 5, pl. i, figs. 7 & 8, and p. 481, fig., and by TRAQUAIR, *op. cit.* x, 1893, p. 147.
- Dinichthys*, Newb. (foss.) : description of the skull, by CLAYPOLE, Am. Geol. x, 1892, p. 199, figs. *D. canadensis*, n. sp., WHITEAVES, Contr. Canad. Pal. i, pt. iv, 1892, p. 353, pl. xlvi, fig. 12, Devonian, Snake I., Lake Winnipeg.
- Gorgonichthys*, n. g., allied to *Dinichthys*. *G. clarki*, n. sp. (foss.), CLAYPOLE, Am. Geol. x, 1892, p. 2, fig., Devonian of Ohio.
- Ganorhynchus oblongus*, n. sp. (foss.), COPE, P. Am. Phil. Soc. xxx, 1892, p. 225, Devonian, Pennsylvania.
- A. S. WOODWARD, Ann. N. H. (6) xi, 1893, pp. 241 & 242, fig., describes a case of subdivision of the median fin in the fossil Dipnoan *Phaneropleuron curtum*.

## OSTRACODERMI.

- A. S. WOODWARD, Nat. Sci. i, 1892, pp. 596-602, figs., has an article on the Earliest Fishes (*Palæospondylus* and *Ostracodermi*).

## ANTIARCHA.

- R. H. TRAQUAIR, P. Phys. Soc. Edinb. 1891-92, pp. 283-286 (1893), offers remarks on the British species of *Asterolepidae*.
- Cephalaspis campbelltownensis*, Whiteaves : note and figure by A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 4, pl. i, fig. 6 : note by TRAQUAIR, *op. cit.* x, 1893, p. 146. *C. jexti*, n. sp., *id. t. c.* p. 147, Lower Devonian, Campbelltown, New Brunswick.
- Holonema rugosa*, Clapp. : notes by COPE, P. Am. Phil. Soc. xxx, 1892, p. 223. *H. horrida*, n. sp., *id. t. c.* p. 222, pl. vii, fig. 2, Devonian, Pennsylvania.
- Bothriolepis minor*, Newb. : note by COPE, *t. c.* p. 224. *B. canadensis*, Whiteaves : note on the supposed jaws ; A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 484, fig. *B. leptochirus*, n. sp., TRAQUAIR, P. Phys. Soc. Edinb. 1891-92, p. 286 (1893), Upper Old Red Sandstone of Heads of Ayr, Scotland.

## OSTEOSTRACI.

- J. V. ROHON discusses the systematic position of the families *Thyestidae* (n. n.) and *Tremataspidae*, and recharacterises the genera *Thyestes*, Eichw., and *Tremataspis*, F. Schmidt. ; Mém. Ac. Pétersb. (7) xxxviii, 1892, No. 13, p. 84.
- Tremataspis schmidtii*, p. 39, *mickwitzii*, p. 56, and *simonsoni*, p. 63, n. spp., ROHON, *t. c.*, Upper Silurian, Isle of Oesel, Baltic.
- Thyestes verrucosus*, Eichw. : descrd. & figrd. by ROHON, *t. c.* p. 15, pls. i & ii.
- Chalcodus permianus*, Zitt., = *Menaspis armata*, Jaekel ; JAEKEL, SB. nat. Fr. 1892, p. 157.

## HETEROSTRACI.

- Palæaspis*, Claypole : notes and restoration by CLAYPOLE, Q. J. Geol. Soc. xlviii, 1892, p. 542, figs.  
*Tolypaspis*, n. n. for *Tolypelepis*, Pander ; F. SCHMIDT, JB. Mineral. 1893, i, p. 100.

## HOLOCEPHALI.

- Ischyodus emarginatus*, Egert. (foss.) : note by A. S. WOODWARD, P. Geol. Ass. xii, 1892, p. 238, pl. iv, fig. 1.  
*Pachymylus*, n. g., for *P. leedsii*, n. sp. (foss.), founded on teeth from the Oxford Clay of Peterborough ; A. S. WOODWARD, Ann. N. H. (6) x, 1892, p. 14, pl. iii, figs. 1 & 2.  
*Brachymylus*, n. g., A. S. WOODWARD, t. c. p. 14. *B. altidens* and *minor*, n. spp. (foss.), Oxford and Kimmeridge Clays, Peterborough and Weymouth.  
*Elasmodectes secans*, n. sp. (foss.), A. S. WOODWARD, t. c. p. 16, pl. iii, fig. 3, Kimmeridge Clay, Weymouth.

## ELASMOBRANCHII.

## ACANTHODII.

- On the systematic position of the *Acanthodii* ; REIS, SB. nat. Fr. 1892, pp. 153-156, and JAEKEL, t. c. pp. 156-158.

## SELACHII.

- A. S. WOODWARD, Nat. Sci. i, pp. 671-675, figs., discusses the evolution of Sharks' teeth.  
 L. EDINGER, Abh. Senck. Ges. xviii, 1892, 55 pp., 5 pls., has a memoir on the brain of Selachians. Abstract in Anat. Anz. vii, 1892, pp. 472-476.  
 H. BRAUS publishes researches on the rami ventrales of the anterior spinal nerves of Selachians. Jena : 1892, 8vo, 35 pp.  
 A. SEDGWICK, Q. J. Micr. Sci. xxxiii, 1892, pp. 559-586, pl. xxxv, has notes on Elasmobranch development.  
 S. MOLLIER, Anat. Anz. vii, 1892, pp. 351-365, has a preliminary note on the development of the limbs in Selachians.  
 C. HASSE, Z. wiss. Zool. lv, 1892, pp. 519-531, pl. xxi, publishes a contribution to the development of the vertebral column of the Selachians.  
 G. ANTIPA, Anat. Anz. vii, 1892, pp. 690-692, figs., remarks on the relations of the Thymus to the so-called branchial cleft organs in Selachians.  
 C. RABL, Leuckart Festschrift, 1892, pp. 228-235, figs., writes on the development of the venous system in Selachians.

- F. RAFFAELE, MT. z. Stat. Neap. x, 1892, pp. 441-479, pls. xxix-xxxi, investigates the development of the vascular system in Selachians.
- A. DOHRN, Anat. Anz. vii, 1892, pp. 348-351, remarks on the nerve-cells of Selachian embryos.
- C. K. HOFFMANN, Morph. JB. xix, 1893, pp. 592-648, figs., pls. xxii-xxv, deals with the embryology of the heart and blood-vessels in the Selachians.
- J. RÜCKERT, Anat. Anz. viii, 1892, pp. 44-52, has a further contribution to the segmentation of the Selachian ovum.
- J. RÜCKERT, *op. cit.* vii, 1892, pp. 107-158, figs., has a paper on the development of the ovarian egg in Selachians.
- F. WERNER, Morph. JB., Syst. vi, 1892, pp. 220-224, pl. x, discusses the signification of the markings of Selachians.

### ASTEROSPONDYLI.

- G. C. PURVIS, P. Phys. Soc. Edinb. 1890-91, pp. 62-67, pl. — (1892), writes on the pineal gland of *Lamna cornubica*.
- M. V. LENHOSSÉK, Anat. Anz. vii, 1892, pp. 519-539, figs., has observations on the spinal ganglia and spinal marrow in embryos of *Pristiurus*.
- Carcharodon mortoni*, Gibbes, = *C. megalodon*, Ag. (foss.); F. A. LUCAS, P. Biol. Soc. Washington, vii, 1892, p. 151.
- Galeus lefevrei*, n. sp. (foss.), DAIMERIES, Bull. Soc. Mal. Belg. (4) vi, 1891, p. lxxiv, Eocene, Brussels.

### TECTOSPONDYLI.

- J. C. EWART has a further paper on the electric organ of the Skate; Phil. Tr. clxxxiii (B), 1892, pp. 389-420, pls. xxvi-xxx. Abstract, P. R. S. l, 1892, pp. 474-476.
- J. C. EWART, Zool. Anz. xv, 1892, pp. 116-120, writes on the sensory canals of *Lamargus* and *Raia batis*.
- J. BEARD, Anat. Anz. vii, 1892, pp. 191-206, figs., has a paper on the transient ganglion cells and their nerves in *Raia batis*.
- A. ALCOCK, Ann. N. H. (6) ix, 1892, pp. 417-427, pl. xix, and x, 1892, pp. 1-8, pl. iv, describes the gravid uterus and foetus of *Trygon bleekeri* and *Pteroplatea micrura*.
- J. WOOD-MASON & A. ALCOCK, P. R. Soc. l, 1892, pp. 202-209, record further observations on the gestation of Indian Rays.
- C. K. HOFFMANN, Anat. Anz. vii, 1892, pp. 270-273, figs., has a note on the early development of the heart and blood-vessels in *Acanthias vulgaris*.
- H. E. & F. ZIEGLER, Arch. mikr. Anat. xxxix, 1892, pp. 56-102, figs., pls. iii & iv, publish contributions to the embryology of *Torpedo ocellata*.
- MARCY, C.R. cxvi, 1893, pp. 77-81, figs., has observations on the natation of the Skate.

- Acanthias vulgaris*, Risso : on a dicephalous embryo; GADEAU DE KERVILLE, J. de l'Anat. Phys. xxviii, 1892, p. 563, pl. xviii, figs. 1 & 2.
- Centrina salviani*, Risso : note by W. L. CALDERWOOD, J. Mar. Biol. Ass. (2) ii, 1892, p. 322, pl. xiii.
- Sclerorhynchus atavus*, A. S. Woodw. (foss.), redescribed and figured by A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 529, pl. xiv.
- Dichelodus acutus*, Gieb. (foss.) : remarks by JAEKEL, JB. Mineral. 1892, i, p. 148.
- Raia clavata*, L. : on an abnormally coloured example; TRAQUAIR, Ann. Scott. N. H. ii, 1893, p. 25, pl. i.
- Trygon pastinaca*, L., var. *marmorata*, Stdr., figured by STEINDACHNER, Denk. Ak. Wien, lix, 1892, pl. iii, fig. 1. *T. navarrae* and *simensis*, n. spp., STEINDACHNER, Anz. Ak. Wien, 1892, pp. 132 & 133, and *t. c.* pp. 381 & 382, pls. v & vi, Shanghai.

### ICHTHYOTOMI.

- Cladodus*, Ag. : remarks by JAEKEL, SB. nat. Fr. 1892, p. 80.
- Pleuracanthidae* : on the remains from the British Coal Measures; J. W. DAVIS, Sci. Tr. R. Dublin Soc. (2) iv, 1892, pp. 703-748, pls. lxx-lxxiii.
- Pleuracanthus undulatus*, p. 733, pl. lxxii, fig. 16, Burnley, *howsei*, p. 735, pl. lxxii, fig. 21, Newcastle-on-Tyne, *thomsoni*, p. 742, pl. lxxiii, fig. 17, Kilmarnock, *obtusius*, p. 742, pl. lxxiii, fig. 18, Clifton, Yorkshire, *serratus*, p. 744, pl. lxxiii, figs. 19 & 20, Newcastle-on-Tyne, and *woodwardi*, p. 744, pl. lxxiii, fig. 21, Dalkeith, n. spp., *id. ibid.*
- Diplodus problematicus*, n. sp. (foss.), A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 2, pl. i, fig. 2, Lower Devonian, Campbelltown, New Brunswick.
- Doliodus*, n. g. for the above species; TRAQUAIR, *op. cit.* x, 1893, p. 145.

### INCERTÆ SEDIS.

- O. JAEKEL, JB. Mineral. 1892, i, pp. 145-151, figs., in reply to some criticisms of A. S. Woodward, enters into details on the structure of various Ichthyodorulites.
- Acanthodes semistriatus*, n. sp., A. S. WOODWARD, Geol. Mag. (3) ix, 1892, p. 3, pl. i, fig. 3, Lower Devonian, Campbelltown, New Brunswick.
- Gyracanthus incurvus*, Traq. : note and figure by A. S. WOODWARD, *t. c.* p. 2, pl. i, figs. 4 & 5.
- Diplotacanthus horridus*, n. sp., A. S. WOODWARD, *t. c.* p. 482, pl. xiii, fig. 1, Upper Devonian, Scaumenac Bay, Canada.
- Cheiracanthus* ? *costellatus*, n. sp., TRAQUAIR, *op. cit.* x, 1893, p. 146, Devonian of Canada.
- Protodus*, n. g., for Elasmobranch teeth representing a specialized form of a very simple type; A. S. WOODWARD, *op. cit.* ix, 1892, p. 1. *P. jexi*, n. sp., *id. t. c.* p. 2, pl. i, fig. 1, Lower Devonian, Campbelltown, New Brunswick. Remarks by TRAQUAIR, *op. cit.* x, 1893, p. 145.

## CYCLOSTOMI.

- J. BEARD, *Anat. Anz.* viii, 1892, pp. 59 & 60, gives an abstract of his observations on small specimens of *Myxine glutinosa*, and on the hermaphroditism of Lampreys.
- R. H. BURNE, *P. Z. S.* 1892, pp. 706-708, pl. xlvii (1893), writes on the presence of a branchial basket in *Myxine glutinosa*.
- G. RETZIUS, *Biol. Fören.* iii, 1892, pp. 81-84, pl. iii, describes the caudal skeleton of *Myxine glutinosa*.
- G. RETZIUS, *op. cit.* iv, 1892, pp. 36-41, figs., writes on the termination of the spine and notochord in the tail of *Petromyzon fluviatilis*.
- On the nerve-terminations in the skin of *Petromyzon*; G. RETZIUS, *Biol. Unters.* (2) iii, 1892, pp. 37-40, pl. xiii.
- B. HATSCHEK, *Anat. Anz.* viii, 1892, pp. 89-91, and *Verh. Anat. Ges.* 1892, pp. 147-161, figs., supplements and corrects some of his observations on Metamery in *Ammocetes*.
- P. OWSJANNIKOW's paper on the embryology of *Petromyzon fluviatilis* is translated in *Ann. N. H.* (6) xi, 1893, pp. 34-43.
- B. LWOFF, *Biol. Centralbl.* xiii, 1893, pp. 45-48, summarises his researches on the segmentation of the *Petromyzon* ovum.
- R. ALCOCK, *P. Cambr. Phil. Soc.* vii, 1892, pp. 252-255, writes on the digestive processes of *Ammocetes*.
- E. CAVAZZANI, *Arch. Ital. Biol.* xviii, 1892, pp. 182-186, relates his experiments on the poisonous properties of the blood of *Petromyzon marinus*.
- Lampetra spadicea*, Bean, described and figured by BEAN, *Nat. Mex.* (2) ii, 1892, pp. 171 & 172, pl. viii : note by BEAN, *P. U. S. Nat. Mus.* xv, 1892, p. 283.

## LEPTOCARDII.

- J. W. VAN WIJHE, *Anat. Anz.* viii, 1893, pp. 152-172, has notes on the morphology of *Amphioxus*.
- B. HATSCHEK, *Anat. Anz.* viii, 1892, pp. 89-91, and *Verh. Anat. Ges.* 1892, pp. 136-147, figs., writes on Metamery.
- E. ROHDE, *SB. Ak. Berlin*, 1892, pp. 659-664, compares the muscles and nerves of *Amphioxus* with those of *Mermis*.
- J. B. PLATT, *Anat. Anz.* vii, 1892, pp. 282-284, figs., writes on fibres connecting the central nervous system and chorda.
- T. BOVERI, *Morph. JB.*, *Anat.* v, 1892, pp. 429-510, figs., pls. xxxi-xxxiv, deals with the excretory tubules of the urogenital system.
- T. BOVERI, *Anat. Anz.* vii, 1892, pp. 170-181, figs., writes on the genital glands.
- E. B. WILSON, *t. c.* pp. 732-740, figs., writes on multiple and partial development.
- B. DANILEWSKY, *Arch. ges. Phys.* li, 1892, pp. 393-400, writes on the physiology of the central nervous system.
- Branchiostoma elongatum*, Sund., recorded from California by EIGENMANN, *Am. Nat.* xxvi, 1892, p. 70.

## VI. TUNICATA.

BY

PROFESSOR W. A. HERDMAN, D.Sc., F.R.S.

### I.—LIST OF PUBLICATIONS.

1. BLES, E. J. Notes on Plankton observed at Plymouth during June—September, 1892. J. Mar. Biol. Ass. (n.s.), ii, No. 4, Nov. 1892, pp. 340-343.
2. BUTSCHLI, O. Einige Bemerkungen über die Augen der Salpen. Zool. Anz. xv, Jhg., No. 401, pp. 349-353.
3. GARSTANG, W. Attempt to elucidate the real structure and relations of Moss's Polystigmatic Appendicularian. Tr. Biol. Soc. Liverp. vi, pp. 57-69, pl. v.
4. ——. On the development of the stigmata in Ascidians. P. R. Soc. li, pp. 505-513.
5. GÖPPERT, E. Untersuchungen ü. d. Sehorgan d. Salpen. Morph. JB. 1892, pp. 250-294, pls. viii-x.
6. HERDMAN, W. A. Notes on the structure of *Oikopleura*. Tr. Biol. Soc. Liverp. vi, pp. 40-56, pls. i-iv.
7. ——. Note on the Geographical distribution of *Tunicata*. Brit. Assoc. Rep. for 1892 (Edinburgh meeting), pp. 787 & 788.
8. ——. Note on Atrial Tentacles in Ascidians. Brit. Assoc. Rep. for 1892 (Edinburgh meeting), pp. 788 & 789.
9. ——. Notes on the Collections made during the Cruise of the s.y. "Argo" up the West Coast of Norway in July, 1891. Tr. Biol. Soc. Liverp. vi, pp. 70-93, pls. vi & vii.
10. ——. A functional Hermaphrodite Ascidian. Nature, xlvi, p. 561.
11. HJORT, JOHAN. Zum Entwicklungscyclus der zusammengesetzten Ascidiën. Zool. Anz. xv, No. 400, pp. 328-332.
12. JOURDAIN, S. De la déglutition chez les Synascidies. Bull. Soc. Philom. iv, No. 1, pp. 35 & 36.  
1892. [VOL. XXIX.]

13. JULIN, CH. Les Ascidiens des côtes du Boulonnais. 1. Recherches sur l'anatomie et l'embryogénie de *Styelopsis grossularia*—Introduction. Bull. Sci. xxiv, pp. 1-52.
14. KOWALEVSKY, A. Einige Beiträge zur Bildung des Mantels des Ascidiens. Mém. Ac. Pétersb. vii, xxviii, No. 10, pp. 1-20, pls. i & ii.
15. LAHILLE, F. Classification des Tuniciers (groupes primordiaux). Naturaliste, 1 Mars, 1892, 12 pp.
16. LOHMANN, H. Vorbericht über die Appendikularien der Plankton-Expedition, in Reisebeschreibung der Plankton-Expedition von Dr. Otto Krümmel. Kiel u. Leipzig, 1892, pp. 139-149.
17. METCALF, MAYNARD M. The Anatomy and Development of the Eyes and Subneural Gland in *Salpa*. Johns Hopk. Univ. Circ. xi, No. 97, pp. 78 & 79 (April, 1892).
18. NOTT, J. T. On the Composite Ascidiens of the North Shore Reef. Tr. N. Z. Inst. xxiv, pp. 305-334, pls. xxiv-xxx.
19. OKA, A. Die periodische Regeneration der Oberen Körperhälfte bei den Diplosomiden. Biol. Centralbl. 12 bd, Nos. 9 & 10, pp. 265-268.
20. —. Ueber die Knospung der Botrylliden. Z. wiss. Zool. bd. 54, pp. 521-547, pls. xx-xxii.
21. OKA, A., and WILLEY, A. On a new genus of Synascidiens from Japan. Q. J. Micr. Sci. xxxiii, pp. 313-323, pls. xvii & xviii.
22. PIZON, A. Développement de l'organe vibratile chez les Ascidiens composées. C.R. cxiv, No. 5, pp. 237-239.
23. —. Histoire de la blastogénèse chez les Botryllidés. Ann. Sci. Nat. Zool. xiv, Nos. 1, 2, 3.
24. —. Développement du système vasculaire colonial chez les Botryllidés. Bull. Soc. Philom. iii, No. 4, pp. 183-186.
25. SALENSKY, W. Ueber die Thätigkeit der Kalymmocyten (Testazellen) bei der Entwicklung einiger Synascidiens (m. Taf. xiv u. xv). Festschrift zum siebenzigsten Geburtstage Rudolf Leuckarts. Leipzig : 1892, pp. 109-120.
26. SEELIGER, O. Ueber die erste Bildung des Zwitterapparates in den jungen Pyrosomenstöcken (m. Taf. xxxviii). Festschrift zum siebenzigsten Geburtstage Rudolf Leuckarts. Leipzig : 1892, pp. 374-384.
27. —. Bemerkungen zu Herrn Prof. Salensky's Beiträge zur Emb. d. Pyrosomen. Zool. Jahrb. bd. v ; Zool. Anz. xv, Jhg., No. 385, pp. 78-84.
28. SWAINSON, G. A new form of Appendicularian "Haus." Int. J. Micr., January, 1892, 3 pp., pl. v.
29. WATT, JAMES. On the structure of *Boltenia pachydermatina*. Tr. N. Z. Inst. xxiv, pp. 334-348, pls. xxxi-xxxiv.

30. WILLEY, A. Observations on the Post-embryonic development of *Ciona intestinalis* and *Clavelina lepadiformis*. P. R. Soc. li, pp. 513-520.
- [See also OKA & WILLEY.]
31. —. On the development of the hypophysis in the Ascidians. Zool. Anz. xv, No. 400, pp. 332-334.

## II.—ANATOMY, EMBRYOLOGY, AND PHYSIOLOGY.

### (a.) ANATOMY.

NOTT (18) has given a description, with some anatomical and histological detail, of eight new species of Compound Ascidians from New Zealand belonging to the genera *Leptoclinum*, *Polysyncraton*, and *Cystodytes*. The most important form is *Polysyncraton*, which presents characters intermediate between those of *Leptoclinum*, M.-Edw., *Calocormus*, Herdm., and the Diplosomidæ. Nott proposes finally to follow Jourdain in uniting the families Didemnidae and Diplosomidæ under the term Oligosomidæ, in which he would put *Polysyncraton*. He gives a new diagnosis of this family Oligosomidæ.

WATT (29) gives an account of the anatomy, and some points in the histology, of *Boltenia pachydermatina*, Herdm., the large common *Boltenia* of New Zealand. He points out that this species agrees with *Culeolus* in having the heart on the right side of the body, and six folds on each side of the branchial sac.

OKA (20) gives an account of the structure of a species of *Botryllus* from Misaki, Japan.

BUTSCHLI (2) gives an account of the eyes of *Salpa*, with the view of showing that while in some species the whole eye is simple and non-inverted, in those with horse-shoe eyes the lateral parts become modified so as to be inverted, and this leads to forms with three eyes, which may be compared with the vertebrate pineal eye and pair of lateral eyes.

METCALF (17) gives a preliminary account of his investigations into the structure and development of the eyes, subneural gland and neighbouring parts in *Salpa*. He finds that in the chain form of *S. pinnata*, in addition to the median dorsal eye, there are two pairs of much smaller eyes on the nerve-ganglion. He finds that the dorsal tubercle is innervated by a plexus of nerve cells and fibres. In the development, the cavity of the central nervous system is continuous with the lumen of the ciliated funnel of the dorsal tubercle. He appears to agree with those previous writers who regard the early function of these structures to have been probably the aeration of the brain, and the carrying off of the waste products, while the opening into the pharynx was probably a sense organ.

GÖPPERT (5) has examined the structure of the eyes in five species of *Salpa*. The eye arises as a stalked body, projecting anteriorly and ventrally from the middle of the ganglion. Some of its cells become the

retina and a pigment layer; there are also in most species special groups of sensory elements without pigment. The retina may also be differentiated into two layers; and the end of the optic cell which is directed towards the light in some cases represents the nerve ending, and in other cases is the opposite end of the cell. He points out that while the solitary *Salpæ* are mostly able to look only dorsally, the chain forms are able to look out ventrally in addition. He considers that there is no direct relation between these eyes of *Salpæ* and the vertebrate eyes, except that both are developed from parts of the central nervous system.

HERDMAN (6) describes the minute structure of a species of *Oikopleura* from Liverpool Bay, as made out from serial sections. These show, amongst other things, the condition of the endostyle as a diverticulum to a great extent shut off from the branchial sac, the presence of a genital duct, the distribution of the enlarged ectoderm cells and the cuticular test, the exact course of the nerve cord through the posterior part of the body, and, finally, the shapes and relative positions of the alimentary and reproductive viscera.

GARSTANG (3), from an examination of the descriptions and figures of Moss and Fol, comes to the conclusion that Moss's remarkable polystigmatic Appendicularian (*Mossia dolioloides*) has no special resemblance to *Doliolum* but is identical with Fol's *Kowalevskia*. He gives a new diagnosis of the genus *Kowalevskia*, and describes the two species *K. tenuis* and *K. mossi*.

HERDMAN (8) points out that atrial tentacles have been known in both Simple and Compound Ascidians since 1882, and are now known to occur in four genera, all of these being cases where colonies or aggregations of individuals are formed.

JULIN (13) gives the first part of a detailed memoir on the Ascidians of Boulonnais. He commences with *Styelopsis grossularia* as a type, and goes over a considerable part of its structure.

OKA & WILLEY (21) give a detailed account of the structure of a new Compound Ascidian allied to the genus *Didemnoides*, from Japan. It forms large red lobed colonies, has large tailed larvæ, and a thin layer of calcareous spicules in the test.

#### (b.) EMBRYOLOGY.

OKA (20) gives an elaborate account of the development of the buds, and the formation of the colony, in a *Botryllus* from Japan.

SEELIGER (27) corrects some points in Salensky's account of the development of *Pyrosoma*—especially in regard to his criticisms of Seeliger's former papers.

HJORT (11) gives an account of the cycle of development in the Compound Ascidians. He finds, as Willey does also, that both in the larva, and also in the young bud, the hypophysis and the ganglion have a common origin from the neural tube, and that the neural tube opens into

the stomodæum, as originally described by Kowalevsky. Willey considers that the ganglion of the Ascidians seems to bear a similar relation to the hypophysis that the infundibulum does to the hypophysis of the higher Vertebrates. But, while in the latter case both organs are rudimentary and arise independently, in the Ascidians both organs are functional and arise together.

PIZON (22) finds in various families of the Compound Ascidians and in Clavelinidæ that the dorsal tubercle develops as a blind diverticulum from the primitive endodermal vesicle and opens secondarily into the "branchial" vesicle, while its posterior part becomes atrophied. It is not, then, a buccal invagination, and so Pizon rejects the homology with the hypophysis of Vertebrates. He considers that the dorsal tubercle is an ancestral organ, once of great importance, but now disappearing, and with no important function in the existing *Tunicata*.

OKA (19) finds a species of *Diplosoma*, from Japan, in which the upper half of the body is periodically renewed, the younger thorax gradually taking the place of the older one.

GARSTANG (4) has investigated the development of the stigmata in the branchial sac of *Clavelina*, *Botryllus*, *Thylacium*, and *Styela*. He finds that in *Botryllus* the stigmata of the full-grown oozoid are secondary formations due to the subdivision of a series of transversely elongated primary "proto-stigmata." In the buds, however, there are no proto-stigmata, the stigmata appearing quite independently of one another. In *Thylacium* and *Styela* he also finds proto-stigmata, while in *Clavelina*, as in the buds of *Botryllus*, the development is secondarily abbreviated. Garstang therefore regards *Pyrosoma* in which the adult stigmata are elongated transversely as being a primitive type of Cadueichordate *Tunicata*, in which the proto-stigmata have never been subdivided. He also regards *Botryllus* and *Styela* as being more primitive in the Ascidacea than *Clavelina*.

WILLEY (30) reconsiders his former views in regard to homologies in *Amphioxus* and the *Tunicata*, and now submits that the proboscis cavity, endostyle, mouth, and first pair of gill slits in Ascidians correspond to the organs bearing the same names in *Amphioxus*, while the club-shaped gland of *Amphioxus* cannot be homologous with the intestine of Ascidians, as suggested by Van Beneden and Julin.

KOWALEVSKY (14) has made the remarkable discovery that the cells in the Ascidian test are mesoblastic in origin, being derived from the mesenchyme of the larva and making their way through the ectoderm to the exterior during the metamorphosis. The thin test of the free-swimming tailed larva (*Phallusia mammillata*) has no cells. This agrees well with the observations made by various investigators, that in Compound Ascidians the cells of the test act as phagocytes. SALENSKY (25) has also independently discovered that in *Pyrosoma* the test cells are mesodermal in origin. JULIN (13) is of opinion that in *Styelopsis* there are two kinds of cells in the test, the one pigmented red, like the pigmented connective tissue cells throughout the body, and probably of

mesodermic origin, the others colourless, and probably of epiblastic origin from the proliferation of the ectoderm.

(c.) PHYSIOLOGY.

JOURDAIN (12) has been making experiments on the process of deglutition in Ascidians. He finds that in *Perophora* and *Clavelina* deglutition takes place along the dorsal side of the branchial sac, a little to the right hand side of the series of languets. He considers that one of the functions of the vibratile pit (dorsal tubercle) is to furnish mucus for the purpose of agglutinating the food particles. HERDMAN (10) places on record an instance of a large Ascidian (*A. mentula*) acting as a functional hermaphrodite and fertilizing its own ova.

### III.—GEOGRAPHICAL DISTRIBUTION.

NOTT (18) records eight species of Compound Ascidians (all new to science) from the north shore reef, Auckland, New Zealand. Only four species of Ascidians had previously been known from New Zealand.

LOHMANN (16) discusses both the horizontal and the vertical distribution of the Appendicularians in the North Atlantic, as brought out by the "Plankton" Expedition.

BLES (1) finds Appendicularia abundant at Plymouth at beginning of July, chiefly *Oikopleura cophocerca*.

HERDMAN (7), from a consideration of the geographical distribution of the known *Tunicata*, comes to the conclusion that Ascidians attain their greatest development, both in numbers and size, in the colder northern and southern seas.

HERDMAN (9) gives a list of twenty-three species of Simple and Compound Ascidians from the Norwegian seas. Several of them are new to science, but are not yet described in detail.

### IV.—SYSTEMATIC.

#### ASCIDIÆ COMPOSITÆ.

##### DIDEMNIDÆ.

*Sarcodidemnoides*, n. g., OKA & WILLEY, (21) p. 321.

*Sarcodidemnoides misakiense*, n. sp., *id. ibid.*

*Leptoclinum niveum*, n. sp., NOTT, (18) p. 308.

*Leptoclinum densum*, n. sp., *id. t. c.* p. 311.

*Leptoclinum tuberatum*, n. sp., *id. t. c.* p. 314.

*Leptoclinum maculatum*, n. sp., *id. t. c.* p. 316.

*Polysyncraton*, n. g., NOTT, (18) p. 318 [genus not defined apart from the species.]

*Polysyncraton paradoxum*, n. sp., *id. ibid.*

*Polysyncraton fuscum*, n. sp., *id. t. c.* p. 321.

DISTOMIDÆ.

*Cystodytes aucklandicus*, n. sp., NOTT, (18) p. 323.

*Cystodytes perspicuus*, n. sp. ?, *id. t. c.* p. 326.

DIPLOSOMIDÆ.

*Diplosoma mitsukurii*, n. sp., OKA, (19) p. 266.

LARVACEA.

*Folia*, n. g., LOHMANN, (16) p. 139.

*Folia æthiopica*, n. sp., *id. ibid.*

*Folia gracilis*, n. sp., *id. t. c.* p. 147.

*Oikopleura labradoriensis*, n. sp., *id. t. c.* p. 141.

*Althoffia*, n. g., *id. t. c.* p. 146.

*Althoffia tumida*, n. sp., *id. t. c.* p. 147.

*Fritillaria glandulifera*, n. sp., *id. ibid.*



## VII. MOLLUSCA.

BY

B. B. WOODWARD, F.G.S., F.R.M.S., &amp;c.

IN this Record an attempt has been made to repair the more serious of the omissions that occurred in *Mollusca* in Vols. XXVI and XXVII. Accordingly important works by COSSMANN, DALL, HEUDE, and others have been either noticed for the first time, or portions that had been previously overlooked have been now inserted.

The Palæontological papers have not been so exhaustively treated as they were in Vol. XXVIII. The labour of examining the extensive literature of Geology is of itself very great; and as it does not appear necessary for the purposes of Zoology proper that all the Palæontological details should be given, the Recorder, in the absence of an understanding that the Record should serve the purposes of Palæontologists as well as Zoologists, has not felt justified in extending the length of his Record by introducing details that might be looked on as superfluous. Hence, fossil species described as new are mostly omitted from the Systematic part of the Record, and the titles of the papers do not invariably appear in the general list. Under the heading "Geological," in Section II, there will, however, be found references to all important Palæontological works and communications; and the fact of new species being described in them is always noted. New generic and sectional names, however, are fully recorded in the Systematic part.

## I.—TITLES.\*

1. ADAMS, G. W. Land and Freshwater Shells at Karachi. Journ. Conch. vii, pp. 81 & 82.
2. ADAMS, L. E. A contribution to the authenticated records of Derbyshire. *T. c.* p. 77.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

3. ALDRICH, T. H. A new Land Shell [*Nanina dohertyi*] from Sumatra. Naut. vi, p. 90.
4. AMALIZKY, W. Ueber die Anthracosien der Permformation Russlands. Palæontogr. xxxix, pp. 125-212, 5 pls. Also separately in Russian: Text 8vo, pls. 4to. Abstract in Protok. Otdyel. Biol. 1891-92, No. 3.
5. ANCEY, C. F. Description of a new species of *Helicidæ* [*Ptychodon magdalenæ*]. Brit. Nat. 1891, pp. 65 & 66.
6. —. Diagnoses of Land Shells. *Op. cit.* 1892, pp. 125-127, 1 fig.
7. —. On some Shells from Eastern Bolivia and Western Brazil. Journ. Conch. vii, pp. 90-97, fig.
8. —. Descriptions de mollusques nouveaux. Le Nat. 1892, p. 178.
- 8A. —. Études sur la Faune malacologique des Iles Sandwich. Mém. Soc. Zool. v, pp. 708-722.
9. ARCHER, F. Supplementary report upon the Testaceous *Mollusca* of the L[iverpool] M[arine] B[iological] C[ommittee] District. P. Liverp. Soc. vi, pp. 105-121.
10. BAICHÈRE, E. Faunule malacologique de Carcassonne. Feuille. Nat. 1892, pp. 63-68.
11. BAKER, F. C. Notes on a collection of Shells from the Mauritius; with a consideration of the genus *Magilus* of Montfort. P. Rochester Acad. ii, pp. 19-40, 1 pl.
12. BALLOWITZ, E. Ueber den feineren Bau der Muskelsubstanzen. 1. Die Muskelfaser der Cephalopoden. Arch. mikr. Anat. xxxix, pp. 291-324, 2 pls. Abstr. in J. R. Micr. Soc. pp. 351 & 352.
13. BARROIS, J. Anatomie du *Cryptazeca monodonta*. Rev. Sci. Nat. Ouest, ii, pp. 330 & 331, figs.
14. BEDNALL, W. T. Land and Freshwater *Mollusca* [of the Elder Exploring Expedition]. Tr. R. Soc. S. Austr. xvi, pp. 62-67, 1 pl.
15. BEHRENDSEN, O. Zur Geologie des Ostabhanges der Argentinischen Cordillere. Z. Geol. Ges. xlv, pp. 1-42.
16. BERGH, R. Die Nudibranchiata holohepatica porostomata. Verh. z.-b. Wien, xlii (Abh.), pp. 1-16.
17. —. System der Nudibranchiaten Gasteropoden. Semper's Reisen in Archipel Philippinen, Theil II, Bd. ii, Hft. 18, pp. 995-1165 [completing vol.].
18. —. Opisthobranches provenant des campagnes du yacht l'Hirondelle. Fasc. iv of "Résultats des Campagnes scientifiques . . . par Albert I. . . de Monaco." Monaco: 1892 [1893 on wrapper], 4to, 35 pp., 4 pls.

19. BEUSHANSEN, L. *Amnigenia rhenana* ein *Anodonta* ähnlicher zweischaler aus dem rheinischen Mitteldevon. JB. k. preuss. geol. Landesanst. xi, Abhand. pp. 1-10, fig.
20. BIERBAUER, B. A Check-list of the Palæozoic Fossils of Wisconsin, Minnesota, Iowa, Dakota, and Nebraska. Bull. Minnesota Acad. iii. *Mollusca*, pp. 234-245.
21. BINNEY, W. G. A Fourth Supplement to the Fifth Volume of the Terrestrial and Air-breathing Mollusks of the United States and adjacent Territories. Bull. Mus. C. Z. xxii, pp. 163-204, 4 pls.
22. BITTNER, A. Neue Arten aus der Trias von Balia in Kleinasien. JB. geol. Reichsanst. xlii, pp. 77-89, 2 pls.
23. —. Ueber die systematische Stellung von *Mactra* und verwandten Gattungen. Verh. geol. Reichsanst. 1892, pp. 232-241.
24. BIZET, E. Catalogue des Mollusques observés à l'état vivant dans le Département de la Somme. Part II. Mem. Soc. L. N. Fr. viii, pp. 262-405.  
Part I appeared in *op. cit.* vii.
25. BLAKE, J. F. The Evolution and Classification of the *Cephalopoda*: an account of recent advances. P. Geol. Ass. xii, pp. 275-295.
26. BLUM, J. Schlendertage auf Capri. Nachr. mal. Ges. 1892, pp. 23-30.
27. —. Die Schneckenfauna von Richisan im Klönthal (Kanton Glarus). Nachr. mal. Ges. 1892, pp. 127-130.
28. BOEHM, G. *Lithiotis problematica*, Gümbel. Ber. Ges. Freiburg, vi, pp. 65-80, 3 pls.
29. —. Ueber den Fussmuskeleindruck bei *Pachyerisma*. T. c. pp. 119 & 120.
30. BÖTTGER, O. Drei neue mitteloligocäne Mollusken aus deutschem Rupelthon. Mal. Bl. xi, pp. 89-93.
31. —. Zur Kenntniss der Land- und Süßwasser-Mollusken von Nossi-Bé. III. Nachr. mal. Ges. 1892, pp. 53-58.
32. —. Schnecken von der Insel Giura, N.-Sporaden, aus dem phokischen Parnass und aus anderen griechischen Gebieten. T. c. pp. 59-66.
33. —. Die Meeresmollusken der mittleren Liukiu-Inseln. (Vorwort von A. Fritze.) T. c. pp. 153-157.
34. —. Neue Stenogyren aus Westafrika und ein neues *Aperostoma* aus Honduras. T. c. pp. 202-204.
35. —. Wissenschaftliche Ergebnisse der Reise Dr. J. Valentin's im Sommer, 1890. II. Die Meeresmollusken der Insel Kalymos. Ber. Senck. Ges. 1892, pp. 150-163.  
— [See also for *Syndosmya schneideri*, n. sp., SCHNEIDER (337), and for determination and description of species, SIMROTH (355).]

36. BOURGUIGNAT, J. R. Iconographie malacologique des Animaux mollusques fluviatiles du Lac Tanganika. Corbeil : 1888, 8vo, 82 pp., 35 pls.
37. —. Mollusques de l'Afrique Équatoriale de Moguedouchou . . . au Tanganyika. Paris : 1889, 8vo, 229 pp., 8 pls.
38. BOUTAN, L. Sur le système nerveux de la *Nerita polita*. C.R. cxiv, pp. 1133-1135. Abstr. in J. R. Micr. Soc. 1892, p. 465.
39. BOUVIER, E. L. Quelques observations anatomiques sur les Mollusques Gastéropodes. CR. Soc. Biol. iv, pp. 987-992.
40. —. Sur l'organisation des Amphiboles. Bull. Soc. Philom. iv, pp. 146-153.  
— [See also FISCHER, P., & BOUVIER, E. L. (131 & 132).]
41. BOYCOTT, A. E. Contributions towards a list of the *Mollusca* of Herefordshire. Sci. Goss. 1892, pp. 77-79.
42. BRANCSIK, C. Consignatio systematica specierum in itinere Bosnensi anno 1888 . . . collectarum, &c. Evköen Trencsén Varm. xii (1890), pp. 68-76.
43. BRAZIER, J. On the synonymy of *Helix (Hadra) gulosa*, Gould. P. Linn. Soc. N.S.W. vi, pp. 321-328.
44. —. Catalogue of the Marine Shells of Australia and Tasmania. Pt. I. *Cephalopoda* ; Pt. II. *Pteropoda*. Sydney : 8vo, 42 pp.  
Australian Museum Catalogue, No. 15.
45. BROEMME, DR. Zur Fauna von Lugano. Nachr. mal. Ges. 1892, pp. 171-173.
46. BRONN, H. G. Klassen und Ordnungen des Thier-Reichs . . . Bd. III. *Mollusca* . . . neu bearbeitet von Dr. H. SIMROTH. Leipzig : 1892, 8vo, Lief 1 & 2.
47. BROWN, AMOS P. The development of the Shell in the Coiled Stage of *Baculites compressus*, Say. P. Ac. Philad. 1892, pp. 136-141, 1 pl.
48. BRUSINA, S. Ueber die Gruppe der *Congerina triangularis*. Z. geol. Ges. xlv, pp. 488-497.
49. —. Fauna fossile terziaria di Markuševac in Croazia. Con un elenco delle Dreissensidæ della Dalmazia, Croazia e Slavonia. Glasnik Naravosl. Druzt. vii, pp. 113-210.
50. BUCAILLE, E. Catalogue raisonné des Mollusques terrestres et d'eau douce observés dans le département de la Seine-Inférieure . . . revue . . . par R. Fortin. Bull. Soc. Rouen, xxvii, pp. 171-189.
51. BUCHNER, O. Die asymmetrie der Gastropoden in ihren Beziehungen und Wirkungen auf die Lebensäusserungen der schalen-tragenden Schnecken. JH. Ver. Württ. xlviii, pp. 58-92.

52. BUCKMAN, S. S. The reported occurrence of *Ammonites jurensis* in the Northampton Sands. Geol. Mag. 1892, pp. 258-260.
53. —. The Morphology of '*Stephanoceras*' zigzac. Q. J. Geol. Soc. xlviii, pp. 447-452, 2 pls.
54. —. A Monograph on the Inferior Oolite Ammonites of the British Islands. Pt. vii, pp. 313-344, pls. lvii-lxxvi (Pal. Soc.).
55. BUCQUOY, E., DAUTZENBERG, P., & DOLLFUS, G. Les Mollusques Marins du Roussillon: fasc. 19, *Carditidæ*, *Lasæidæ*, *Galeommidæ*, *Cardiidæ*; fasc. 20, *Cardiidæ* (fin), *Chamidæ*, *Isocardiidæ*, = Tome ii, pp. 221-320, pls. xxxviii-li.
56. CANAVARI, M. Note di Malacologia fossile. Bull. Soc. Mal. Ital. xvi, pp. 65-73, 1 pl.
57. CARAZZI, D. La perforazione delle rocce calcaree per opera dei datteri (*Lithodomus dactylus*). Atti Soc. Ligust. iii, pp. 279-297, fig.
58. CARUANA-GATTO, A. New *Clausiliæ* from Malta. Med. Nat. i, pp. 148 & 149.
59. —. Disappearance of *Spondylus gæderopus*, L., and other species from Maltese Waters. T. c. p. 165.
60. —. Maltese *Cæcilianellæ*. Op. cit. ii, pp. 226 & 227.  
3 new species are described by WESTERLUND.
61. —. *Assimineæ littorina*, Delle Chiaie, in Malta. T. c. p. 245.
62. CAZIOT, —. Liste des coquilles marines recueillies à Bandol (pres Toulon). Feuille. Nat. 1892, pp. 148 & 149.
63. CHASTER, G. W. Shell hunting in Merionethshire. Journ. Conch. vii, pp. 78 & 79.
64. CLARKE, J. M. The discovery of *Clymenia* in the fauna of the *intumescens* zone (Naples beds) of Western New York, &c. Am. J. Sci. xliii, pp. 57-62, figs.
65. CLESSIN, S. *Bythinella bosniensis*, n. sp. Mal. Bl. xi, p. 20, fig.
66. CLUBB, J. A. [See HERDMAN & CLUBB (184).]
67. COCKERELL, T. D. A. [Descriptions of alleged new species of *Helix* and *Veronicella*, concealed in "Museum Notes".] J. Inst. Jamaica, i, pp. 55, 96, 134.
68. —. Remarks on Australian Slugs. Ann. N. H. ix, pp. 370-372.  
[Reply to HEDLEY (178).]
69. —. The genera *Limax*, *Arion*, and *Helix*. Conchologist, ii, pp. 28 & 29.
70. —. The British *Arionidæ*. T. c. pp. 84 & 85.  
[A criticism of COLLINGE (79).]
71. —. New varieties of American *Mollusca*. Journ. Conch. vii, p. 39.

72. [COCKERELL, T. D. A.] A revised list of the species of British Slugs. *Journ. Conch.* vii, pp. 66-70.
73. —. Notes on the North American species of *Succinea*. *Naut.* vi, pp. 21-23 & 29-31.
74. —. The endemic features of the British Slug-Fauna. *Sci. Goss.* 1892, pp. 255-259.
75. COLLINGE, W. E. Notes on the variation of the genus *Arion*. *Ann. N. H.* ix, pp. 307 & 308.
76. —. *Limax maximus*, L., and its variety *cinereo-niger*, Wolf. *Ann. N. H.* x, pp. 425 & 426.
77. —. Descriptions of a new variety of *Arion hortensis*, Fér., and *A. circumscriptus*, Johnst. *Conchologist*, ii, pp. 26-27.
78. —. Some further remarks on the burrowing habits of certain Land Molluscs. *T. c.* pp. 29 & 30.
79. —. A review of the *Arionidæ* of the British Isles. *T. c.* pp. 56-66 & 76-83.  
[Criticism by COCKERELL, *t. c.* pp. 84 & 85 ; reply by COLLINGE, pp. 85 & 86.]
80. —. A catalogue of the Slugs of the British Isles. *Brit. Nat.* 1892, pp. 176-179.
81. CONKLIN, E. G. Cleavage of the ovum in *Crepidula fornicata*. *Zool. Anz.* xv, pp. 185-188, figs. Abstr. in *J. R. Micr. Soc.* 1892, p. 464.
82. COOKE, A. H. On the origin of the genera of Land and Freshwater *Mollusca*. *Conchologist*, ii, pp. 41-48.
83. —. On the geographical distribution of the Land-Mollusca of the Philippine Is., and their relations to the Mollusca of the neighbouring groups. *P. Z. S.* 1892, pp. 447-469. Abstr. in *Nature*, xlvi, p. 142.
84. COOPER, J. G. Catalogue of the Land and Freshwater *Mollusca* of Lower California. *Zoe*, iii, pp. 12-25.
85. COSSMANN, M. Catalogue illustré des coquilles fossiles de l'Éocène des Environs de Paris. Fasc. v (*Pteropoda*, *Cephalopoda*), Supplement. *Mem. Soc. Mal. Belg.* 1891 [1893], pp. 1-163 ; also, separately in advance, July, 1892.  
The names for new sections proposed in Parts iii & iv, and omitted from the RECORD in 1889-90, have been inserted in the Systematic part this year.
86. —. Réponse aux observations de M. É. Vincent sur le "*Gilbertia inopinata*, Morlet." *Bull. Soc. Mal. Belg.* 1891 [1893], pp. lxiv-lxvi.
87. —. Révision sommaire de la faune du terrain oligocène marin aux environs d'Étampes (continued). *J. de Conch.* 1892, pp. 330-375.

88. COUPIN, H. Les Mollusques : introduction à l'étude de leur organisation, développement, classification, affinités, et principaux types, vii & 261 pp., figg.
89. COUTAGNE, G. Sur la Faune malacologique terrestre des Iles de la Rade de Marseille. C.R. Ass. Fr. Sci. 1891, ii, pp. 546-554.
90. COX, J. C. Descriptions of some new species of Pulmonate Mollusca from Australia and the Solomon Is. P. Linn. Soc. N.S.W. vi, pp. 565-570, 2 pls.
91. CRANDALL, O. A. *Physa heterostropha*. Naut. vi, pp. 20 & 21.
92. CRICK, W. D. Bibliography of the Land and Freshwater *Mollusca* of Northamptonshire. Conchologist, ii, pp. 10-13.
93. CROSSE, H. Faune malacologique terrestre et fluviatile de l'île de Portorico. J. de Conch. 1892, pp. 5-71.
94. —. Études malacologiques sur des genres nouveaux ou peu connus. T. c. pp. 279-292, 1 pl.  
 —. [See also FISCHER & CROSSE (133).]
95. CROSSE, H., & FISCHER, P. Note sur les Mollusques marins du Golfe de Siam (Côte O. du Cambodge). T. c. pp. 71-77.
96. — & —. Note sur le genre *Holospira*, Martens, et sur la distribution géographique des espèces dont il se compose. T. c. pp. 256-279, 1 pl.
97. — & —. Note sur le *Neritina picta*, Sow. T. c. pp. 292 & 293.
98. — & —. Diagnoses Molluscorum Reipublicæ Mexicanæ et Guatemalae incolarum. T. c. pp. 294-296.  
 —. [See also FISCHER, P., & CROSSE, H. (133).]
99. CUÉNOT, L. Études sur le sang et les glandes lymphatiques dans la série animale (2<sup>e</sup> Partie : Invertébrés). Arch. Z. expér. ix, 1891 (Mollusques), pp. 19-54. Abstr. in J. R. Micr. Soc. 1892, pp. 192 & 193.
100. —. L'excrétion chez les Gastéropodes pulmonés. C.R. cxv, pp. 256-258. Abstr. in J. R. Micr. Soc. 1892, p. 597.
- 100A. —. Études physiologiques sur les Gastéropodes Pulmonés. Arch. Biol. xii, pp. 683-740, 1 pl. Abstr. in J. R. Micr. Soc. 1893, p. 312.
101. DALL, W. H. Reports on the Results of Dredging, under the supervision of A. Agassiz, in the Gulf of Mexico (1877-78) and in the Caribbean Sea (1879-80), by the U.S. Coast Survey Steamer "Blake," . . . xxix. Report on the *Mollusca*. . . Part II. *Gastropoda* and *Scaphopoda*. Bull. Mus. C. Z. xviii, 1889, 492 pp., 31 pls.

102. [DALL, W. H.] Contributions to the Tertiary Fauna of Florida. . . . Part II [completing the *Gastropoda*, *Pteropoda*, *Polyplacophora*, and *Scaphopoda*, Tr. Wagner Inst. iii, pp. 201-446, 1 map, and pls. xiii-xxii.
103. —. Note on *Cytherea convexa*, Say. Naut. vi, pp. 52 & 53.
104. —. On some types new to the fauna of the Galapagos Islands. *Op. cit.* v. pp. 97-99.
105. —. Instructions for Collecting Mollusks, and other useful hints for the Conchologist. Bull. U.S. Nat. Mus. xxxix, 56 pp.
- [For *Vitrinella williamsoni* and *Amphissa bicolor*, n. spp., see WILLIAMSON (435).]
- [For *Pleurotoma simpsoni*, *Tralia minuscula*, and *Pandora bushiana*, n. spp. (1889), see SIMPSON (349).]
106. DANILO, F., & SANDRI, G. B. Elenco dei molluschi lamelli-branchiati dei dintorni di Zara. Glasnik Naravosl. Druzt. vi, 1891, pp. 82-108.
107. DAUTZENBERG, P. Révision des Mollusques Marins des Açores. [Fasc. I of Résultats des Campagnes scientifiques accomplies sur son yacht par le Prince . . . de Monaco.] Monaco: 1889, 4to, 112 pp., 4 pls.
108. —. Description d'un *Perideris* nouveau [*P. lechatelieri*] provenant du Dahomey. J. de Conch. 1892, p. 297.
109. —. Description d'une espèce nouvelle du genre *Chama* [*C. nicoloni*] provenant des côtes océaniques de France. Bull. Soc. Ouest Fr. ii, pp. 133-135, figg.
- [See also BUCQUOY, E., DAUTZENBERG, P., & DOLLFUS, G. (55).]
110. DEAN, G. W. More about *Unio luteolus* and *U. radiatus*. Naut. v, pp. 112 & 113.
111. —. Catalogue of the Shell-bearing *Mollusca* of Portage County, Ohio. Am. Nat. xxvi, pp. 11-23.
112. DESCHAMPS, E. Description d'une nouvelle espèce d'*Unio* [*U. corbeti*] de Ceylan. Bull. Soc. Z. Fr. xvii, pp. 68-69, fig.
- DOLLFUS, G. [See BUCQUOY, E., DAUTZENBERG, P., & DOLLFUS, G. (55).]
113. DONALD, MISS J. Notes on some new and little-known species of Carboniferous *Murchisonia*. Q. J. Geol. Soc. xlviii, pp. 562-575, 2 pls.
114. DREGER, J. Die Gastropoden von Häring bei Kirchbichl in Tirol. Ann. Hofmuseum Wien, vii, pp. 11-34, 4 pls.
115. DROUET, H. *Unionide* nouveaux ou peu connus. J. de Conch. 1892, pp. 86-94.

- 115A. DROUET, H., & CHAPER, M. Voyage de M. Chaper à Borneo.—*Unionida*. Mém. Soc. Zool. v, pp. 145–155, 2 pls.
116. DUBOIS, R. Anatomie et physiologie comparées de la Pholade dactyle. Ann. Univ. Lyon, ii, fasc. 2, x & 167 pp., 15 pls.  
DUNKER, W. [See HESSE, P. (185).]
117. EHRLMANN, P. Nachtrag zur Gastropoden-Fauna der Umgegend von Leipzig nebst einigen biologischen Bemerkungen. SB. Ges. Leipzig, xviii, pp. 76–80.
118. ERLANGER, R. VON. Beiträge zur Entwicklungsgeschichte der Gasteropoden . . . Thl. I. Zur Entwicklung von *Bythinia tentaculata*. MT. z. Stat. Neap. x, pp. 376–407, 2 pls., figg. Abstr. in J. R. Micr. Soc. 1893, p. 313.
119. —. Mittheilungen über Bau und Entwicklung einiger marinen Prosobranchier. I. Ueber *Capulus hungaricus*. Zool. Anz. xv, pp. 465–468. Abstr. in J. R. Micr. Soc. 1893, p. 163.
120. —. On the paired Nephridia of Prosobranchs, the homologies of the only remaining Nephridium of most Prosobranchs, and the relations of the Nephridia to the Gonad and Genital Duct. Q. J. Micr. Sci. xxxiii, pp. 587–623, 2 pls. Abstr. in J. R. Micr. Soc. 1892, p. 598.  
ETHERIDGE, R., JUN. [See JACK & ETHERIDGE (193).]
121. EYRE, W. L. W. On the Classification of Varieties [of *Helix hortensis* and *nemoralis*]. Conchologist, ii, pp. 7–10.
122. \*FAGOT, P. Histoire malacologique des Pyrénées Françaises et Espagnoles. Liste, &c. Bull. Soc. Ramond, 1891, xxvi, p. 215 (*vide* Rev. Tr. Sci. xii, p. 393).
123. —. Histoire malacologique de la presque île Sainte-Lucie (Aude). Bull. Soc. Aude, iii, pp. 173–180.
124. FAURE, C. Dell' origine di qualche varietà nei Molluschi. Riv. Ital. Sci. Nat. x, 1891, pp. 89, 90, & 105–107.
125. FISCHER, H. Recherches sur la morphologie du Foie des Gastéropodes. Bull. Sci. Fr. xxiv, pp. 260–346, 7 pls. Abstr. in J. R. Micr. Soc. 1892, pp. 596 & 597.
126. —. Note sur l'enroulement de la coquille des embryons de Gastropodes. J. de Conch. 1892, pp. 309–313.
127. —. Sur le développement du Foie chez la Paludine. C.R. Soc. Biol. iii, 1891, pp. 644 & 645.  
— [See also FISCHER, P., and FISCHER, H. (134).]
128. FISCHER, P. Catalogue et distribution géographique des Mollusques terrestres, fluviatiles, et marins d'une partie de l'Indo-Chine. Bull. Soc. Autun, iv, pp. 87–276.
129. —. Note sur la distribution géographique de l'*Ovula carnea*, Poiret. J. de Conch. 1892, pp. 77 & 78.

- 129A. [FISCHER, P.] Le Catalogue de la Collection Schlüter. J. de Conch. 1892, pp. 208-212.
130. —. Note sur la faune terrestre et fluviatile de l'île d'Hainan (Chine). Deuxième supplément. *T. c.* pp. 313-315.
131. FISCHER, P., & BOUVIER, E. L. Recherches et considérations sur l'asymétrie des Mollusques univalves. *T. c.* pp. 117-207, 3 pls.
132. — & —. Sur l'enroulement des Mollusques univalves. *T. c.* pp. 234-245.
133. FISCHER, P., & CROSSE, H. Études sur les mollusque terrestres et fluviatiles. Mission Scient. Mexique et Amér. Cent. VII, ii, pp. 313-392, pls. liii & liv. *Melaniidae*, *Proserpinidae*.  
— [See also CROSSE, H., & FISCHER, P. (95).]
134. FISCHER, P., & FISCHER, H. Diagnoses d'espèces nouvelles de Mollusques Céphalopodes recueillis dans le cours de l'Expédition scientifique du Talisman. J. de Conch. 1892, pp. 297-300.
135. FOLIN, MARQUIS DE. Les mollusques speciaux à la région extrême sud-ouest de la France et l'Atlantide. Rev. Sci. Nat. Ouest, ii, pp. 324-329.
136. FORD, J. Some remarks on New Jersey Coast Shells. Naut. vi, pp. 25-29, figs.
137. FORESTI, L. Di alcune varietà della *Melania verrii*, De Stef. Bull. Soc. Mal. Ital. xvi, pp. 74-79, 1 pl.
138. —. Di una nuova specie di *Pholadomya* [*P. elegantula*] pliocenica. *T. c.* pp. 80-82, 1 pl.
139. FUTTERER, —. Die oberen Kreidebildungen den Umgebung des Lago di Santa Croce in der Venetianer Alpen. Pal. Abh. vi, 124 pp., 12 pls.
140. GAIN, W. A. Some remarks on the Colour changes in *Arion intermedius*, Normand. Conchologist, ii, pp. 55 & 56.
141. —. [Notes on Variation.] Brit. Nat. 1892.
142. GALLENSTEIN, H. VON. Die Schalenformungen der Muscheln des Wörther-See's in Kärnten. Nachr. mal. Ges. 1892, pp. 102-114.
143. GALLETLY, A. The Pearl Molluscs of the Persian Gulf. P. Phys. Soc. Edinb. xi, pp. 30 & 31.
144. GAMBLE, F. W. Observations on two rare British Nudibranchs (*Lomanotus genei*, Verany, and *Hancockia eudactylota*, Gosse). Ann. N. H. ix, pp. 378-385, 1 pl.
145. GANONG, W. F. Zoological Notes. . . . I. *Mollusca* [of New Brunswick]. Bull. Nat. Hist. Soc. New Brunswick, ix, pp. 46 & 47.  
Addenda to list published 1887.

146. GARSTANG, W. On some new or rare Marine Animals recently discovered on the Coast of Devonshire. Rep. Tr. Devon Ass. xxiv, pp. 377-386.

*Mollusca*, pp. 383 & 384.

147. —. Notes on the Structure and Habits of *Jorunna johnstoni*. Conchologist, ii, pp. 49-52.

GATTO, A. C. C. [See CARUANA-GATTO (58, &c.).]

148. GIRARD, A. O. Notice sur les Céphalopodes des côtes de l'Espagne. An. Soc. Esp. xxi, pp. 391-399.

149. GODWIN-AUSTEN, H. H. On new species and varieties of the . . . genus *Diplommatina* from the Garo, Naga, and Manipur Hill-ranges, Assam. P. Z. S. 1892, pp. 509-520.

150. —. Description of a new species of *Helix* of the subgenus *Plecto-pylis* [*H. fultoni*]. Ann. N. H. 1892, pp. 300 & 301.

151. GOODRICH, E. S. Note on a large Squid (*Ommastrephes pteropus*, Stp.). J. Mar. Biol. Ass. ii, pp. 314-321, figg.

152. GOODCHILD, J. G. Notes on Carboniferous Lamellibranchs [*Ctenodonta* and *Nucula*]. P. Phys. Soc. Edinb. xi, pp. 244 & 245.

- 152A. —. Note on the genus *Allorisma*, King. T. c. pp. 245 & 246.

153. GORJANOVIC-KRAMBERGER, D. Ueber einen tertiären Rudisten [*Ceratoconcha costata*, n. g. & sp.] aus Podused bei Agram. Glasnik. Naravosl. Druzt. iv, 1889, pp. 48-55, 1 pl.

154. GRANGER, A. Description d'une nouvelle espèce d'Ampullaire [*Ampullaria brohardi*]. Le Nat. 1892, p. 97, fig.

155. GREGORIO, MARCH A. DE. Sul genere *Pectunculus* e principalmente sulle specie viventi Mediterranee e fossili. Nat. Sicil. xi, pp. 89-96 & 106-114.

For comment on this paper, see MONTEROSATO (260).

156. —. Intorno alla nota del March. di Monterosato sul genere *Pectunculus*. T. c. pp. 209-212.

157. —. Nota intorno talune conchiglie Mediterranee del terziario inferiore del littorale Ligure. T. c. pp. 270-272.

158. GRIESBACH, —. Ueber das Blut der acephalen Mollusken. Verh. Ges. Deutsch. Naturf. lxiii, pt. 2 (1891), pp. 131-133.

159. GRIFFITHS, A. B. Sur une globuline incolore [from the blood of *Patella*] qui possède une fonction respiratoire. C. R. cxv, p. 259.

160. —. Sur une globuline respiratoire contenue dans le sang des Chitons. T. c. pp. 474 & 475.

161. —. Sur les tissus nerveux de quelques invertébrés. T. c. pp. 562 & 563.

162. —. On the Blood of the *Invertebrata*. P. R. Soc. Edinb. xviii (Blood of the *Mollusca*), pp. 290-292, & xix, pp. 127-130.

163. GROBBEN, C. Beiträge zur kenntniss des Baues von *Cuspidaria* (*Neaera*) *cuspidata*, Olivi, nebst Betrachtungen über das System der Lamellibranchiaten. Arb. z. Inst. Wien, x, No. 3, 46 pp., 4 pls. Abstr. in J. R. Micr. Soc. 1893, p. 164.
164. —. Das system der Lamellibranchiaten. Zool. Anz. xv, pp. 371–375.  
This is the second section of the preceding. Diverse translations of the table of classification appear in J. R. Micr. Soc. 1892, p. 772, and Nat. Sci. ii, p. 9.
165. GUPPY, R. J. L. Note on *Bulinus oblongus*. P. Z. S. 1892, pp. 271 & 272.
166. HALLER, B. Die Anatomie von *Siphonaria gigas*, Less., eines opisthobranchen gasteropoden. Arb. z. Inst. Wien, x, pp. 71–100, 3 pls. Abstr. in J. R. Micr. Soc. 1892, p. 770.
167. —. Die morphologie der Prosobranchier . . . III. Naticiden und Calyptraeiden. Morph. JB. xviii, pp. 451–543, 7 pls. Abstr. in J. R. Micr. Soc. 1892, pp. 769–770.
168. HART, H. C. Notes on Marine Mollusca collected on the Coasts of Donegal and Dublin. Zool. xvi, pp. 51–56, 105–107, 139–141, 181–183 & 414.
169. HARTMANN, W. D. Description of a new *Diplomorpha* [*D. coxi*]. P. Linn. Soc. N.S.W. vi, p. 571, figg.
170. —. Catalogue of the genus *Partula* [pt. i]. Naut. vi, pp. 73–76, figg.
171. HECHT, E. Remarques sur quelques moyens de défense des Éolidiens. C.R. cxv, pp. 746–748. Abstr. in J. R. Micr. Soc. 1893, p. 313.
172. HEDLEY, C. List of the *Mollusca* collected by Sir W. MacGregor on the Fly River. Colonial Reports, No. 6, British New Guinea, 1889–1890 (1891), p. 84.
- 172A. —. Uses of shells among the Papuans. Thompson's British New Guinea. London: 1892, 8vo, pp. 283–285.
173. —. [Note on a species of *Glaucus* (*G. atlanticus*) frequently washed ashore on the Coast of New South Wales.] P. Linn. Soc. N.S.W. vi, p. 576.
174. —. The Land Molluscan fauna of British New Guinea (Anatomical Supplement) [to paper Zool. Rec. 1891, *Moll.* p. 12, No. 172]. T. c. pp. 685–698, 5 pls.
175. —. Observations on the *Charopidae*. Op. cit. vii, pp. 157–169, 2 pls.
176. —. On the genus *Perrieria*. T. c. pp. 311–313.
177. —. On the structure and affinities of *Panda atomata*, Gray. Rec. Austral. Mus. ii, pp. 26–31, 3 pls.

178. [HEDLEY, C.] Remarks on Australian Slugs. Ann. N. H. ix, pp. 169-171.

See COCKERELL (68) for reply.

179. HEDLEY, C., & MUSSON, C. T. On a collection of Land and Fresh-water Shells from Queensland. P. Linn. Soc. N.S.W. vi, pp. 551-564.
180. HEIMBURG, H. VON. Abbildung und Beschreibung einer neuen *Helix* [*H. aggiei*, Solomon Is.]. Mal. Bl. xi, pp. 158 & 159, figg.
181. HEMPHILL, H. Studies among Mollusks, Instinct and Genera. Zoe, ii, pp. 312-318.
182. —. Note on a Californian *Loligo* [*L. stearnsii*, n. sp.]. Zoe, iii, pp. 51 & 52.
183. HERDMAN, W. A. An additional occurrence of *Pleurophyllidia loveni* in Britain. Conchologist, ii, p. 52.
184. HERDMAN, W. A., & CLUBB, J. A. On the innervation of the Cerata of some *Nudibranchiata*. Q. J. Micr. Sci. xxxiii, pp. 541-558, 3 pls. Abstr. in J. R. Micr. Soc. 1892, p. 598.
185. HESSE, P. Zur Kenntniss der Molluskenfauna Westfalens. (Conchylien, welche sich in der Grafschaft Schaumburg und der Umgegend finden. Von W. Dunker.) J. Ber. Westf. Ver. xix (1891), pp. 79-86.
186. HEUDE, P. M. Notes sur les Mollusques terrestres (et d'eau douce) de la Vallée du Fleuve Bleu. Pp. 125-188, pls. xxxiii-xliii in Mém. Hist. Nat. Empire Chinois, par des Pères de la Compagnie de Jésus. Tom i, pt. 4, 1890.

Part only seen and recorded in 1891.

— [See also MOELLENDORFF (257).]

187. HEUSCHER, J. Zur Anatomie und Histologie der *Proneomenia sluiteri*, Hubrecht. Viert. Ges. Zürich, xxxvii, pp. 148-161, figg. Abstr. in J. R. Micr. Soc. 1892, p. 771.
188. HOLM, G. Om mynningen hos *Lituities*, Breyn. Geol. Fören. Stockholm Förh. xiii, pp. 736-774, 3 pls.
189. —. Om tvenne *Gyroceras*-formigt böjda *Endoceras*-arter. Op. cit. xiv, pp. 125-134 & 208-210, 3 pls.
190. HORSLEY, J. W. List of *Mollusca* found at Meiringen, Switzerland. Journ. Conch, vii, p. 32.
191. HUDLESTON, W. H. A Monograph of the British Jurassic *Gasteropoda*. Pt. I, No. 6. *Gasteropoda* of the Inferior Oolite (Pal. Soc.), pp. 273-324, pls. xxi-xxvi.
192. HUDLESTON, W. H., & WILSON, E. A Catalogue of British Jurassic *Gasteropoda*, &c. London: 8vo, xxxiii & 147 pp.
- 192A. \*ISHIKAWA, C. [Introduction to the Anatomy of Animals. I. *Dipsas plicata*, Lea.] In Japanese. Tokio: 1892, 8vo, 35 pp., 6 pls.

193. JACK, R. L., & ETHERIDGE, R., JUN. The Geology and Palæontology of Queensland and New Guinea. Text & atlas, 2 vols. Brisbane & London : 1892, 8vo, xxx & 768 pp., 68 pls.
194. JANET, C. Note sur trois nouvelles Bélemnites Sémoniennes. Bull. Soc. Géol. xix, pp. 716-721, 1 pl., figg.
195. JHERING, H. VON. Morphologie und Systematik des Genitalapparates von *Helix*. Z. wiss. Zool. liv, pp. 386-520, 2 pls. Abstr. in J. R. Micr. Soc. 1892, pp. 768 & 769.
196. —. *Anodonta* und *Glabaris* (finis). Zool. Anz. xv, pp. 1-5.
197. —. Zur Kenntniss der Gattung *Cristaria*. Nachr. mal. Ges. 1892, pp. 1-14.
198. —. Die Gattung *Hyalina*. T. c. pp. 132-140.
- 198A. —. Ueber *ATOPOS*, Simroth. T. c. pp. 140-144.
199. JOBERT, —. De la formation du Byssus chez quelques Mollusques acéphales. Rev. Tr. Sci. xii, pp. 396-398.
200. JOHNSON, C. W., & PILSBRY, H. A. A new American *Helix* [*H. sargenti*]. Naut. vi, pp. 8 & 9.  
 — & —. [See also PILSBRY & JOHNSON (303).]
201. JOHNSTON, R. M. Critical observations on recent contributions to our knowledge of the freshwater Shells of Tasmania. Part I. P. R. Soc. Tasm. 1888 (1889), pp. 84-90, 4 pls.  
 The plates illustrate the author's paper in the same publication for 1877.
202. —. Observations on the variability of the Tasmanian *Unio*. T. c. pp. 95-96, 2 pls.
203. JOUBIN, L. Recherches sur la coloration du tegument chez les Céphalopodes. Arch. Z. expér. x, pp. 277-330, 3 pls. & figg.
204. JOUSSEAUME, F. Réflexions sur la Faune malacologique de la Mer Rouge. Ann. Sci. Nat. xii, pp. 343-363.
205. KELLOG, J. L. Some notes from a study in the Morphology of the *Lamellibranchiata*. Johns Hopk. Univ. Circ. xi, pp. 80-83. Abstr. in J. R. Micr. Soc. 1892, pp. 353 & 354.
206. KEYES, C. R. The *Platyceras* group of Palæozoic Gasteropods. Am. Geol. x, pp. 273-277.
207. KILIAN, W. Sur quelques Ammonitides appartenant au Muséum d'Histoire Naturelle de Lyon. Arch. Mus. Lyon, v, No. 3, 9 pp., 1 pl.
208. —. Sur quelques Céphalopodes nouveaux ou peu connus de la période secondaire. Bull. Soc. Stat. Isère (4) i, pp. 203-208, 7 pls.
209. KITTL, E. Die Gastropoden der Schichten von St. Cassian der südalpiner Trias. II Thiel. Ann. Hofmuseum Wien, vii, pp. 35-97, 5 pls.

210. КНИПОВИЧ, N. K émbriologhii Kruilonoghikh [On the Embryology of the *Pteropoda*]. Rev. Sci. Nat. St. Pétersb. 1891, pp. 148-151.
211. KOENEN, A. VON. Das norddeutsche Unter-Oligocän und seine Mollusken-Fauna . . . Lief. iv. *Rissoide-Patellide* . . . *Opisthobranchiata* . . . *Polyplacophora*, *Scaphopoda*, *Pteropoda*, *Cephalopoda*. Abh. Geol. specialkarte Preuss. x, No. 4, pp. 819-1004, pls. liii-lxii.
212. KOKEN, E. Ueber die Gastropoden der rothen Schlernschichten nebst Bemerkungen über Verbreitung und Herkunft einiger triassischer Gattungen. JB. Mineral. 1892, ii, pp. 25-36.  
For extended paper, see WOEHRMANN & KOKEN (438).
213. KORSCHOLT, E. On the Development of *Dreissena polymorpha*, Pallas. Ann. N. H. ix, pp. 157-169, figg. Transl. from SB. nat. Fr. 1891, pp. 131-146.
214. —. Beiträge zur Entwicklungsgeschichte der Cephalopoden in Festschr. R. Leuckarts. pp. 347-373, 2 pls. & figg.
215. —. Ueber die Differenzierung der Keimblätter bei den Cephalopoden mit Rücksicht auf die Bildung des Darm-canals und nerven-systems. Verh. deutsch. Zool. Ges. ii, pp. 87-92.  
KRAMBERGER-GORJANOVIC, D. [See GORJANOVIC-KRAMBERGER (153).]
216. KRAUSE, A. Mollusken von Ostspitzbergen. Zool. JB. vi, Syst. pp. 339-376, 3 pls.
217. LACAZE-DUTHIERS, H. DE. Observation d'un Argonaute de la Méditerranée. Arch. Z. expér. x, pp. 37-56, fig. Abstr. in Le Nat. 1892, pp. 114 & 115, fig., and J. R. Micr. Soc. 1892, p. 351.
218. LANG, A. Lehrbuch der Vergleichenden Anatomie, &c. Abth. iii, *Mollusca*, pp. 567-870, figg. Jena: 1892, 8vo.
219. LETELLIER, —. Sur la fonction urinaire de l'organe de Keber chez les Mollusques acéphales. Bull. Soc. L. Norm. v, pp. 8-12.
220. LOCARD, A. Sur les *Pleurotomide* vivants du groupe du *Clathurella purpurea*. Échange, 1891, vii, pp. 5 & 6.
- 220A. —. Sur une espèce nouvelle du genre *Neptunea* [*N. nicolloni*]. T. c. p. 34.
- 220B. —. Espèces nouvelles du groupe du *Cytherea rudis*, Poli. T. c. p. 69.
221. —. Les Anomies des côtes de France. T. c. p. 86.
222. Révision des *Alexia* Françaises. T. c. pp. 131 & 132.
223. —. Sur une espèce nouvelle du genre *Belgrandia* [*B. coutagnei*]. Op. cit. viii, p. 3.

224. [LOCARD, A.] Sur quelques Limnées Françaises du groupe du *Limnæa limosa*. *T. c.* pp. 18 & 19.
225. —. Les Limnées Françaises du groupe du *Limnæa peregra*. *T. c.* pp. 77-79, 90, & 91.
226. —. Sur la présence d'une *Mitra* [*M. aquitanica*] Française dans la faune océanique. *T. c.* p. 101.
227. LOENS, H. Ergiebige Methode, kleine Wasserschnecken zu fangen. *Nachr. mal. Ges.* 1892, pp. 66-68.
228. —. *Succinea oblonga*, *pfeifferi*, *putris* im Trocknen lebend. Hirschberg in Schlesien. *T. c.* pp. 130 & 131.
229. —. Nachtrag zur Molluskenfauna Westfalens. *T. c.* pp. 169 & 170.
230. —. Die Gastropodenfauna des Münsterlandes. *Mal. Bl.* xi, pp. 121-157.
231. LOEWINSON-LESSING, F. Les Ammonées de la zone à *Sporadoceras münsteri*, dans les monts Gouberlinskya Gory. *Mém. Soc. Belg. Géol.* vi, pp. 15-25, 1 pl.
232. LOISEL, G. Sur l'appareil musculaire de la Radula chez les *Helix*. *J. de l'Anat.* xxviii, pp. 566-572, figg.
233. LORY, P. Sur les *Hoplites* Valanginiens du groupe de *Hoplites neocomiensis*. *Bull. Soc. Stat. Isère* (4) i, pp. 229-255.
234. MACDONALD, R. On the Classification of Varieties [of *Helix hortensis* and *nemorialis*]. *Conchologist*, ii, pp. 27 & 28.
235. MACGEORGE, —. Un mollusque nouveau [*Thylacodes medusæ*] du Japon. *Le Nat.* 1892, pp. 123 & 124, fig.
236. M'INTOSH, W. C. Note on the occurrence of *Pleurophyllidia loveni* in Britain. *Conchologist*, ii, p. 21.
237. McMURTRIE, J. Eigg Shells : notes on the Land and Freshwater *Mollusca* of the Island of Eigg. *Journ. Conch.* vii, pp. 113-119.
238. MARSHALL, W. B. Preliminary list of New York *Unionidæ*. *Bull. New York Mus. Nat. Hist.* i, No. 1, 17 pp.
239. —. Gould's types of *Nassa* and *Columbella*. *Naut.* vi, pp. 47 & 48.
240. MARTENS, E. Die lebenden Mollusken in den Kantonen Appenzell und St. Gallen. *Ber. St. Gall. Ges.* 1889-90 (1891), pp. 108-132.
241. —. Einige neue Arten von Land- und Süsswasser-Mollusken aus Uganda und dem Victoria-Nyansa. *SB. nat. Fr.* 1892, pp. 15-19.
242. —. Ueber einige seltenere Conchylien der Mark Brandenburg, insbesondere über *Clausilia latestriata*, Bielz. *SB. nat. Fr.* 1892, p. 93.
243. —. Ueber die von Dr. Stuhlmann in Nordostafrika gesammelten Land- und Süsswasser-Mollusken. *T. c.* pp. 174-181.

244. [MARTENS, E.] Die Beschreibung vier neuer Afrikanischer Conchylien-Arten. *T. c.* pp. 181-183.
245. —. *Biologia Centrali-Americana. Mollusca*, pp. 97-176, pls. vi-ix.
246. MARTINI & CHEMNITZ. Systematisches Conchylien-Cabinet. Lief. 390-395, Bd. iii, Abth. 12, Hft. 52-54: *Columbellidæ* and *Nassidæ*, bearbeitet von Dr. W. Kobelt, pp. 1-128, pls. i-xviii. Bd. xi, Abth. 4, Hft. 21: *Pholadea* bearbeitet von S. Clessin, pp. 25-40, pls. vii-xii.
247. MASCARINI, A. I Molluschi conchigliiferi delle adiacenze di Ascoli-Piceno. *Bull. Soc. Mal. Ital.* xvi, pp. 234-260.
248. MAZZARELLI, G. Intorno al preteso occhio anale dell larve degli Opistobranchi. *Rend. R. Acc. Lincei*, 1892, i, pp. 103 & 104. Abstr. in *J. R. Micr. Soc.* 1892, p. 770.
249. MELVILL, J. C. Notes upon *Cypræa chrysalis* and *C. amphithales*. *Journ. Conch.* vii, pp. 120-123.
250. MELVILL, J. C., & PONSONBY, J. H. Descriptions of seven new species of Terrestrial *Mollusca* from South Africa. *Ann. N. H.* ix, pp. 84-87, figg.
251. — & —. Descriptions of seventeen new Terrestrial Mollusks from South or Central Africa, in the Collection of E. L. Layard. *T. c.* pp. 87-94.
252. — & —. Descriptions of thirteen new species of Terrestrial and Freshwater *Mollusca* from South Africa. *Op. cit.* x, pp. 237-242, 1 pl.
253. METCALF, M. M. Preliminary notes upon the Embryology of *Chiton*. *Johns Hopk. Univ. Circ.* xi, pp. 79 & 80. Abstr. in *J. R. Micr. Soc.* 1892, pp. 352 & 353.
254. MIKHAËLIS, E. Opisanie novuikh i maloizvyestnuikh mollyuskov yuzhnagho Altaya i syevernoï Dzhungharii [Descriptions of new or little-known *Mollusca* from Southern Altai and Northern Dzoongaria]. 1. *Limax natalianus*, n. sp. Issued by the Acad. Imp. Sci. St. Petersburg. 8vo, 6 pp., figg.
255. MILLOT, L. Note sur les Céphalopodes Dibranches du Lias supérieur de Sainte-Colombe-lès-Avallon (Yonne), précédée d'un résumé sur la classification des Céphalopodes. *Bull. Soc. Autun*, iv, pp. 37-57, fig.
256. MOEBIUS, K. Eine echte Perle von ungewöhnlicher Form und Färbung. *SB. nat. Fr.* 1892, pp. 1-3, fig.
257. MOELLENDORFF, O. VON. Bemerkungen zu P. Heude's notes sur les Mollusques terrestres de la vallée du Fleuve Bleu. *Nachr. mal. Ges.* 1892, pp. 15-23.
258. —. Die Landschneckenfauna der Tenimber Inseln (Timorlaut). *T. c.* pp. 81-102, 1 pl.
1892. [VOL. XXIX.]

259. MOENIG, J. Zur Molluskenfauna im Oberamt Saulgau. *JH. Ver. Württ.* xlviii, pp. 119-134.
260. MONTEROSATO, MARCHESE T. DI. Nota intorno ai *Pectunculus* dei mari d'Europa. *Nat. Sicil.* xi, pp. 143-155.  
 Comment on a paper by GREGORIO (155).
261. —. Note sur l'*Emarginula compressa*, Cantraine. *J. de Conch.* 1892, pp. 78-81.
262. —. Monografia dei *Vermeti* del Mediterraneo. *Bull. Soc. Mal. Ital.* xvii, p. 7-48, 7 pls.
263. MORLET, L. Diagnoses Molluscorum novorum in Indo-Chinâ collectorum. *J. de Conch.* 1892, pp. 82-86.
264. —. Descriptions d'espèces nouvelles, provenant de l'Indo-Chine. *T. c.* pp. 315-329, 3 pls.
265. MOYNIER DE VILLEPOIX, R. Recherches sur la formation et l'accroissement de la coquille des Mollusques. *J. de l'Anat. Phys.* xxviii, pp. 461-518 & 582-674, 4 pls.  
 Also issued as a Thesis, dated 1893.
266. —. Sur la réparation de la coquille chez *Helix aspersa*. *Bull. Soc. Z. Fr.* xvii, pp. 30 & 31. Abstr. in *J. R. Micr. Soc.* 1893, p. 30.
267. —. Note sur le mode de production des formations calcaires du test des Mollusques. *Mém. Soc. Biol.* iv, pp. 35-42.  
 MUSSON, C. T. [See HEDLEY & MUSSON (179).]
268. NEWTON, R. B. On the American Palæozoic Gasteropod, *Trematodontus*, and its identification in Britain, with description of a new species [*T. britannicus*]. *Geol. Mag.* 1892, pp. 337-341 & 525, 1 pl.
269. NICOLAS, H. Compléments monographiques des genres *Lartetia*, *Moitessieria*, *Bithinella*, *Avenionia*, et *Acme*. *Ann. Soc. Agric. Lyon*, iv, pp. 27-50, 1 pl.
270. —. Étude . . . sur la Faune malacologique du Danien des Environs de Saint-Remy et Les Baux (Provence). *C.R. Ass. Fr. Sci.* 1891, ii, pp. 448-457, figg.
271. NOVÁK, O. Revision der palæozoischen Hyolithiden Böhmens. *Abh. Böhm. Ges.* iv, No. 6, 48 pp., 6 pls., figg. in text.
272. OLDHAM, C. Additions to the South Devon list of Land and Fresh-water *Mollusca*. *Journ. Conch.* vii, pp. 108 & 109.
273. OPPENHEIM, P. Die Gattungen *Dreysensia* van Beneden und *Congerina* Partsch, ihre gegenseitigen Beziehungen und ihre Vertheilung in zeit und Raum. *Z. geol. Ges.* xliii, pp. 923-966, 1 pl.
274. —. Ueber innere gammenfalten bei fossilen Cerithien und Melaniaden. *Op. cit.* xliv, pp. 439-446, figg.
275. PALLECCHI, T. Nota sui cromatofori dei Cefalopodi. *Atti Soc. Ligust.* iii, pp. 204-214.

276. PANTANELLI, D. Lamellibranchi pliocenici: Enumerazione e sinonimia delle specie dell' Italia superiore e centrale. Bull. Soc. Mal. Ital. xvii, pp. 49-128. [In progress.]
277. PAVLOW, A. Argiles de Speeton et leurs équivalents, par A. Pavlow & G. W. Lamplugh. II. Ammonites de Speeton et leur rapports avec les Ammonites des autres pays. Par A. Pavlow. Bull. Soc. Mosc. 1891 (1892), pp. 455-513, 6 pls. Abstr. in Nature, xlv, p. 257.
278. PELSENEER, P. La classification générale des Mollusques. Bull. Sci. Fr. Belg. xxiv, pp. 347-371, 1 fig.
279. —. Le système nerveux streptoneure des Hétéropodes. C.R. cxiv, pp. 775-777. Abstr. in J. R. Micr. Soc. 1892, p. 352.
280. —. L'Oeil de *Scutum*. Bull. Soc. Mal. Belg. 1891 [1893], pp. xxviii-xxx.
281. —. L'Hermaphroditisme des Nudibranches sacoglosses (Elysiens, &c.). T. c. p. lv.
282. —. Sur quelques points d'organisation des Nudibranches et sur leur phylogénie. T. c. pp. lxviii-lxxi.
283. —. Sur la dentrosité de certains Gastropodes dit "sénestres" (*Lanistes*, *Peraclis*, *Limacina*, et larves des *Cymbuliidae*). T. c. pp. xciv-xcvi.
284. —. À propos de l' "Asymétrie des Mollusques univalves." J. de Conch. 1892, pp. 229-233.
285. PHISALIX, C. Note sur les Chromatophores des Cephalopodes. C.R. Soc. Biol. iv, pp. 442-447, fig.
286. PICAGLIA, L. Molluschi terrestri e fluviatili viventi nelle Provincie di Modena e Reggio. Catalogo sistematico. Bull. Soc. Mal. Ital. xvi, pp. 83-232.  
Includes a table with the distribution of Tertiary species.
287. —. Contributo alla Malacologia fossile dell' Emilia. Molluschi terrestri e fluviatili del Modenese e del reggiano. Atti. Soc. Mod. xi, pp. 157-177 & 226.
288. PICARD, K. Ueber *Balatonites andersshanus*, n. sp. Z. geol. Ges. xlv, pp. 483-487, 1 pl.
289. PILSBRY, H. A. Anatomy of West Indian Helices [*Caracolus rostratus*, *acutus*, *Hemitrochus salvatoris*]. P. Ac. Philad. 1892, pp. 128 & 129, 1 pl.
290. —. New and unfigured *Unionidae*. T. c. pp. 131 & 132, 2 pls.  
[Notes and figures of *Unio quintardii*, Cragin, *pilsbryi*, Marsh, and *Arconia provancheriana*, Pilsbry; all old species.]
291. —. A new species of *Pachychilus* [*P. (polygonatus*, Lea? var.) *roviroisai*]. T. c. p. 153, fig.

292. [PILSBRY, H. A.] On the anatomy of *Sagda*, *Cysticopsis*, *Ægista*, and *Dentellaria*. *T. c.* pp. 213-215, 1 pl.
293. —. A new Marine Gasteropod [*Chrysodomus stonei*] from New Jersey. *T. c.* 328 pp., figg.
- 293A. —. Notes on a collection of Shells from the State of Tabasco, Mexico. *T. c.* pp. 338-341, figg.
294. —. Preliminary outline of a new classification of the *Helices*. *T. c.* pp. 387-404.
295. —. On a collection of Land *Mollusca* from the I. of Dominica, West Indies. [With notes on habitats, &c., by G. E. Verrill.] *Tr. Conn. Ac.* viii [4 pp. Extract].
296. —. Description of a new *Hydrobia* [*H. texana*] with notes on other *Rissoiæ*. *P. Davenport Ac.* v, 1887, pp. 33 & 34.
297. —. A new species of *Zonites* [*Z. brittsii*] from Arkansas. *Naut.* v, pp. 99.
298. —. Note on the group *Panda*. *Op. cit.* vi, p. 9.
299. —. Observations on the *Helices* of New Zealand. *T. c.* pp. 54-57.
300. —. On the Amnicoloid genus *Lyogyrrus*, with the description of a new species [*L. dalli*]. *T. c.* pp. 61 & 62.
301. —. Observations on the Helicoid group *Charopa* and allied forms. *T. c.* pp. 67-69.
302. —. *Hadra* and *Camaena* [Reply to Moellendorff, see *Zool. Rec.* 1891, *Moll.* p. 19, No. 285]. *Nachr. mal. Ges.* 1892, pp. 69-73.  
 —. See also TRYON'S Manual, &c.  
 —. [See also JOHNSON & PILSBRY (200).]
303. PILSBRY, H. A., & JOHNSON, C. W. Catalogue of *Fissurellidæ* of the United States. *Naut.* v, pp. 102-107 & 113.
304. PLATE, L. Ueber einiger Organisations verhältnisse der Dentalien. *SB. Ges. Marb.* 1890 (1891), pp. 26-29.
305. —. Ueber den Bau und die systematische Stellung der *Solenocoenen*. *Verh. deutsch. Zool. Ges.* i, 1891, pp. 60-63. *Abstr.* in *J. R. Micr. Soc.* 1892, p. 465, and *Am. Nat.* xxvi, pp. 347 & 348.
306. —. Ueber den Bau und die Verwandtschaftsbeziehung der *Oncidien*. *Verh. deutsch. Zool. Ges.* ii, pp. 30-42.  
 With phylogeny of *Pulmonata* and *Opisthobranchiata*.
307. —. Ueber den Bau und die Verwandtschaftsbeziehungen der *Solenocoenen*. *Zool. JB.* v, *Anat.* pp. 301-86, 4 pls. *Abstr.* in *J. R. Micr. Soc.* 1893, p. 31.

308. POLLONERA, C. Note su alcuni gruppi di specie del genere *Xerophila*. 1. Sul gruppo della *X. subprofuga*. Boll. Mus. Zool. Tor. vii, No. 128, 18 pp.
- PONSONBY, J. H. [See MELVILL & PONSONBY (250-252).]
309. POTEAT, W. L. Notes on the fertility of *Physa heterostrophæ*, Say. J. Elisha Mitchell Sci. Soc. viii, pp. 70-73. Abstr. in Science, xix, pp. 325 & 326.
310. PRUVOT, G. Sur l'embryogénie d'une *Proneomenia* [*P. aglaopheniæ*]. C.R. cxiv, pp. 1211-1214. Abstr. in J. R. Micr. Soc. 1892, p. 599.
311. RAWITZ, B. Ueber den feineren Bau der hinteren Speicheldrüsen der Cephalopoden. Arch. mikr. Anat. xxxix, pp. 596-611, 1 pl. Abstr. in J. R. Micr. Soc. 1892, p. 595.
312. —. Der mantelrand der Acephalen. Dritte Theil, *Siphoniata*, &c. Jen. Z. Nat. xxvii, pp. 1-232, 7 pls, and figg. Abstr. in J. R. Micr. Soc. 1892, p. 772.
313. REIBISCH, P. Die [non marine] conchyliologische Fauna der Galápagos-Inseln. SB. Ges. Isis, 1892, pp. 13-32, 1 pl.
314. REIBISCH, TH. Verzeichniss der bisher in den diluvialen Mergeln von Cotta bei Dresden aufgefundenen [non marine] Conchylien. T. c. pp. 8-12.
315. RETZIUS, G. Das sensible nervensystem der mollusken [*Limax* and *Arion*]. Biol. Untersuch. N. F. iv, pp. 11-18, 3 pls.
316. RIGAU, E. Notice géologique sur le Bas Boulonnais. Mém. Soc. Acad. Boulogne, xiv [n. spp. described on pp. 104-108, 2 pls].
317. RIVERS, J. J. A new volutoid shell [*Scaphella (Voluta) arnheimi*] from Monterey Bay. Naut. v, pp. 111 & 112.
318. ROEBUCK, W. D. Additions to the . . . census of the Land and Freshwater *Mollusca* of Scotland. Ann. Scot. N. H. 1892, pp. 104-107 & 235-238.
319. ROGERS, J. On the viviparous nature of *Balea*. Journ. Conch. vii, pp. 40 & 41.
320. ROLLE, H. Diagnosen neuer Arten. Nachr. mal. Ges. 1892, pp. 50-52.
321. ROSEN, O. Beitrag zur Kenntniss der Molluskenfauna Transkasiens und Chorossans. T. c. pp. 121-126.
322. ROSSMAESSLER's Iconographie der Europäischen Land- und Süßwasser-Mollusken. Fortgesetzt von D. Kobelt. Neue Folge. Bd. v, pp. 41-118, pls. cxxxi-cl; Bd. vi, pp. 1-48, pls. cli-clx.
323. ROTHPLETZ, A. Die Perm-, Trias- und Jura-formation auf Timor und Rotti im indischen Archipel. Palæontogr. xxxix. *Mollusca*, pp. 85-106.

324. RUEDIGER, H. Ueber die Silur- Cephalopoden aus den Mecklenburgischen Diluvialgeschieben. Arch. Ver. Mecklenb. xlv, pp. 1-86, 3 pls.
325. SACCO, F. I molluschi dei terreni terziarii del Piemonte e della Liguria. . . . Pt. xi. *Eulimida* e *Pyramidellida*. Mem. Acc. Tor. xlii, pp. 585-682, 2 pls.
326. SAMPSON, F. A. *Mesodon andrewsi* in Missouri. Naut. vi, pp. 90 & 91.
327. SANDBERGER, F. VON. Verzeichniss der Conchylien des nördlichen Badischen Schwarzwalds. Mal. Bl. xi, pp. 94-100.
- SANDRI, G. B. [See DANILO & SANDRI (106).]
328. SARGENT, F. E. Annotated list of Alabama Land *Mollusca*. Naut. vi, pp. 76-78.
329. SCHARFF, R. F. The Slugs of Ireland. Sci. P. R. Dubl. Soc. vii, pp. 192-195.
- Abstr. of paper in Sci. Tr. recorded for 1891.
330. —. Some remarks on the Distribution of British Land and Freshwater *Mollusca*. Conchologist, ii, pp. 1-6.
331. —. Note on the affinities of the genera *Limax*, *Arion*, and *Helix*. T. c. pp. 14, 83, & 84.
332. —. The Irish Land and Freshwater *Mollusca*. Irish Nat. i, pp. 45-47, 65-67, 87-90, 105-109, 135-138, 149-153, & 177-181; also separately, 25 pp. & Index.
333. SCHEPMAN, M. M. Land and Freshwater Shells collected by Dr. H. Ten Kate in Soemba, Timor, and other East-Indian Islands. Notes Leyd. Mus. xiv, pp. 145-160, 1 pl.
334. SCHIELDT, R. C. Diffuse pigmentation of the Epidermis [not periostracum] of the Oyster, due to prolonged exposure to the light, &c. P. Ac. Philad. 1892, pp. 350 & 351.
335. —. The Hermaphroditism and Viviparity of the Oysters of the N.W. Coast of the United States. T. c. pp. 351 & 352.
336. SCHIELDT, R. C., & RYDER, J. A. On the cause of the Greening of the Oyster, and its presumed Algaous endoparasites. T. c. p. 352.
337. SCHNEIDER, O. Vorläufige mittheilung über die Molluskenfauna von Borkum [with description of *Syndosmya schneideri*, n. sp., by O. BÖTTGER]. Nachr. mal. Ges. 1892, pp. 114-117.
338. SCHUBERTH, O. Beiträge zur vergleichenden Anatomie des Genitalapparates von *Helix* mit besonderer Berücksichtigung der Systematik. Arch. f. Nat. lviii, pp. 1-65, 6 pls. Abstr. in J. R. Micr. Soc. 1892, p. 196.
339. SCOTT, A. [List of *Mollusca* from the raised beach at Fillyside, between Leith and Portobello. In paper by J. Bennie.] P. R. Phys. Soc. Edinb. xi, pp. 221-237.

340. SCOTT, T. Notes on a collection of Echinoderms and Molluscan Shells found in the Moray Firth District. *T. c.* pp. 82-84.
341. —. On the Land and Freshwater *Mollusca* of Bute. P. N. H. Soc. Glasg. iii, pp. 170-181, 1 map.
342. SHIMEK, B. A new species of Freshwater Mollusk [*Ancylus obliquus*]. Bull. Lab. Iowa, i, pp. 214 & 215, fig.
343. —. *Pyrgulopsis scalariformis* (Wolff), Call & Pilsbry. *T. c.* pp. 168-174, 1 pl.
344. SIEMIRADZKI, J. VON. Die oberjurassische Ammoniten-Fauna in Polen. Z. geol. Ges. xlv, pp. 447-482.
345. SIMONELLI, V. Sopra le affinità zoologiche della *Rothpletzia rudista*, Sim. Boll. Soc. geol. Ital. xi, pp. 76-80, figg.
346. SIMPSON, C. T. Notes on the *Unionidæ* of Florida and the South-eastern States. P. U. S. Nat. Mus. xv, pp. 405-436, 26 pls.
347. —. Collecting Notes. Naut. vi, pp. 37-40.
348. —. On a revision of the American *Unionidæ*. *T. c.* pp. 78-80.
349. —. Contributions to the *Mollusca* of Florida. P. Davenport Acc. v (1887-89), pp. 45-72 & 63<sup>a</sup>-72<sup>a</sup>.  
 Descriptions of *Pleurotoma simpsoni*, *Tralia minuscula*, and *Pandora bushiana*, n. spp., by W. H. Dall.
350. SIMPSON, G. B. Descriptions of new species of Fossils from the Clinton . . . and Waverly Groups, &c. Tr. Am. Phil. Soc. xvi (1890) [*Mollusca*], pp. 445-459, figg.
351. SIMROTH, H. Ueber einige Raublungenschnecken des Kaukasus. Festschr. R. Leuckarts. Leipzig: 1892, 8vo, pp. 48-58, 1 pl., figg.
352. —. Ueber Kaukasische Limaciden und Testacelliden. Verh. deutsch Zool. Ges. i, 1891, pp. 57 & 58.
- 352A. —. Ueber die Vaginuliden. *T. c.* pp. 58-60.
353. —. Ueber eine anzahl von muscheln welche Herr Pechuël-Losche auf seiner bekannten Expedition an den Congofällen gesammelt hatte. SB. Ges. Leipzig, xviii, pp. 23 & 24.
- 353A. —. Ueber *Atopos*, &c. *T. c.* pp. 25-29.
354. —. Ueber die nackten *Limaciden* und *Testacelliden* des Kaukasus. *T. c.* pp. 40-49.
355. —. Ueber die bei Gelegenheit einer Reise nach dem Kaukasus gesammelten Gehäuseschnecken [species determined, and *Hyalinia horstii*, n. sp., described, by Dr. O. BÄTTGER]. *T. c.* pp. 49-58.
356. —. Ueber eine reihe von *Vaginula*arten. *T. c.* pp. 58-73; Nachtrag, pp. 84-86.
357. —. Ueber die pelagischen Gastropodenlarven der deutschen Planktonfahrt. *T. c.* pp. 98-107.

358. [SIMROTH, H.] Einige Bemerkungen über *Bithynella dunkeri*, Frauenf. Mal. Bl. xi, pp. 106 & 107, figg.
359. —. *Hesperarion*, eine neue Amerikanische Nachtschneckengattung. *T. c.* pp. 109–119, figg.
360. —. Einige Bemerkungen zu vorstehendem Aufsatz [Ueber *Atopos*, Simr., von H. v. Ihering]. *Nachr. mal. Ges.* 1892, pp. 144–149.
361. —. Einige Punkte aus der oekonomie des Weichthierkörpers, ein Kapitel über Constitution. *Leopoldina*, 1892 [*Mollusca*], pp. 122–125 & 141–144.
- [See also BRONN, H. G. (46).]
362. SLUITER, C. P. Ueber die Bewegung einiger tropischen Mollusken, &c. *Tijdschr. Nederl. Dierk. Ver.* iii, pp. 170–184, 1 pl.
363. SMITH, C. W. Additional Notes on the Land and Freshwater Shells of Cumberland and Westmoreland. *Tr. Cumberl. Westmorl. Ass.* xvi, pp. 139 & 140.
364. SMITH, E. A. On the Land Shells of St. Helena. *P. Z. S.* 1892, pp. 258–270, 2 pls.
365. —. Descriptions of new species of Shells [*Pecten crouchi*] from Mauritius and [*Mitra fultoni*] from California. *Ann. N. H.* ix, pp. 255 & 256, figg.
366. —. On the Shells of the Victoria Nyanza, or Lake Oukéréwé. *Op. cit.* x, pp. 121–128, 1 pl.
- 366A. —. Additions to the Shell Fauna of the Victoria Nyanza. *T. c.* pp. 380–383.
367. —. Further additions to the known Marine Molluscan Fauna of St. Helena. *T. c.* pp. 129–135.
368. —. Description of a new species of Slug [*Apera burnupi*] from South Africa. *T. c.* pp. 465 & 466.
369. —. Notes on *Gasteropteron meckelii*, Kosse. *P. N. H. Soc. Glasg.* iii, pp. 258 & 259.
370. —. Description of a new species of *Spondylus* [*S. powelli*] and a new *Helix* [*H. hedleyi*]. *Journ. Conch.* vii, pp. 70–73.
371. —. Description of a new species of *Nucula* [*N. fultoni*], and a list of the species belonging to the subgenus *Acila*. *T. c.* pp. 110–112.
372. —. Note on a variety and the epidermis [*i.e.*, periostracum] of *Cyclophorus zebrinus* of Benson. *Conchologist*, ii, pp. 6 & 7.
373. —. Description of a new species of *Acroptychia* [*A. notabilis*]. *T. c.* pp. 22 & 23.
374. —. Notice of an imperforate specimen of *Haliotis*. *T. c.* pp. 75 & 76.

375. [SMITH, E. A.] Remarks upon the relationship of the Molluscan Fauna of the Red Sea and Mediterranean. Med. Nat. i, pp. 109-111. [Reprint from P. Z. S. See Zool. Rec. 1891, *Moll.* p. 26, No. 405.]
376. SMITH, J. List of Shells, &c., observed on the Ardeer and Irvine Beaches, Ayrshire. P. N. H. Soc. Glasg. iii, pp. 243-248.
377. SOMERVILLE, J. E. *Achatina acicula* in a Roman Cemetery at Ventimiglia, Italian Riviera. Journ. Conch. vii, pp. 42 & 43.
378. SOWERBY, G. B. Marine Shells of South Africa, &c. London: 4to, pp. iv & 89, 5 pls.
379. —. Descriptions of seven new species of Land Shells from the U.S. of Colombia. P. Z. S. 1892, pp. 296-299, 1 pl.
380. —. Review of the genus *Pyrula* (Lamarck), and description of a new species [*P. filosa*]. Conchologist, ii, pp. 73-75.
381. STANDEN, R. Observations on the reproduction of the dart, during an attempt to breed from a sinistral *Helix aspersa*, Müll. Journ. Conch. vii, pp. 33-38.
382. STEARNS, R. E. C. Preliminary descriptions of new Molluscan forms from West American regions [Galapagos Is.], &c. Naut. vi, pp. 85-89.
383. STEIN, J. G. Am. Beiträge zur Mollusken-Fauna Graubünden's. II. Nachtrag. J. Ber. Ges. Graub. xxxv, pp. 124-139.
384. STERKI, V. Some notes on North American forms of *Vallonia*. Naut. v, pp. 100 & 101.
385. —. Preliminary list of North American *Pupidae* (North of Mexico). *Op. cit.* vi, pp. 2-8.
386. —. *Hyalinia leviuscula*, n. sp. *T. c.* pp. 53 & 54.
387. STONE, W. On Atlantic Crepidulas. *T. c.* pp. 40-42, figg.
388. STRODE, W. S. The *Unionidae* of Spoon River, Fulton Co., Illinois. Am. Nat. xxvi, pp. 495-501.
389. STRUBELL, B. Landschnecken aus Halmahera [Moluccas]. Nachr. mal. Ges. 1892, pp. 41-50.
390. SUTER, H. Contributions to the Molluscan Fauna of New Zealand. Tr. N. Z. Inst. xxiv, pp. 270-278.
391. —. List of the introduced Land and Freshwater *Mollusca* of New Zealand. *T. c.* pp. 279-281.
- 391A. —. List of Land and Freshwater *Mollusca* doubtful for New Zealand or not inhabiting it [*sic*: i.e., erroneously attributed to New Zealand]. *T. c.* pp. 281-283.
392. —. Miscellaneous communications on New Zealand Land and Freshwater *Mollusca*. *T. c.* pp. 283-286.

393. [SUTER, H.] On the Dentition of some New Zealand Land and Fresh-water *Mollusca*, with descriptions of new species. Tr. N. Z. Inst. xxiv, pp. 286-303, 4 pls.
394. —. Conchyliologische Mittheilungen aus Neu-Seeland. Mal. Bl. xi, pp. 101-106, figg.
395. —. Communications Conchyliologiques des Antipodes. 1. Les *Pitys* de la Nouvelle-Zélande. 2. Un *Ancylus* de la Nouvelle-Zélande. 3. Les *Limacidae* et *Arionidae* de la Nouvelle-Zélande. J. de Conch. 1892, pp. 245-255.
396. SYKES, E. R. On some monstrosities of *Littorina rudis*, Maton. P. Dorset Field Club, xiii, pp. 191-198, 1 pl.
397. —. Bibliography of the Land and Freshwater *Mollusca* of Dorset. Conchologist, ii, pp. 24-26.
398. SZÉP, R. Die Molluskenfauna der Umgebung von Güns. Mal. Bl. pp. (27-32 in 1889) 33-41.
399. TATE, R. Descriptions of some new species of Marine *Mollusca* from Australia. Tr. R. Soc. S. Austr. xv, pp. 125-132, 1 pl.
- 399A. —. A third supplement to a list of the Lamellibranch and Palio-branch *Mollusca* of S. Australia. T. c. pp. 133-136.
- 399B. —. The Cambrian Fossils of S. Australia. T. c. pp. 183-189, 1 pl.
400. TAUSCH, L. VON. Ueber die Bivalvengattung *Conchodus* und *C. schwageri*, n. f. aus der obersten Trias der Nordalpen. Abh. Geol. Reichsanst. xvii, No. 1, 8 pp., 3 pls.
401. TAYLOR, G. W. Japanese Limpets. Naut. vi, pp. 69 & 70.
402. —. Note on *Acmaea saccharina* (Linne). T. c. pp. 89 & 90.
403. THIELE, J. Beiträge zur kenntniss der Mollusken. I. Ueber das Epipodium. Z. wiss. Zool. liii, pp. 578-590, 1 pl.
- 403A. —. II. Ueber die Molluskenschale. T. c. pp. 220-251, 1 pl. Abstr. in J. R. Micr. Soc. 1893, p. 164.
404. —. Zur phylogenie des Byssus-apparats der Lamellibranchier. Verh. deutsch. Zool. Ges. ii, pp. 52-57.
405. —. Das Integument der Chitonen. Biol. Centralbl. xi, 1891, pp. 722-726.
406. TIPPENHAUER, L. G. Die Insel Haiti. Leipzig : 1893, 4to [List of *Mollusca*], pp. 325-327.
407. TOMLIN, J. R. B. Notes on the Marine *Mollusca* of the North Wales Coast, with complete lists of the recorded Nudibranchs and Cephalopods. Journ. Conch. vii, pp. 25-31.
408. TOMLIN, B. [Notes on *Rissoa*.] Brit. Nat. 1892, pp. 72-74, 155 & 156, 179 & 180, 257 & 258.

409. TRYON. Manual of Conchology . . . continuation by H. A. Pilsbry. Vol. xiv (pts. 53 & 54), *Polyplacophora*, 128 pp., 29 pls.
410. —. —. Second Series: *Pulmonata*, Vol. viii (*Helicidae*, Vol. vi), 112 pp., 27 pls. [*Cochlostylæ* completed—Suppt. to *Helix*].
- 410A. TUNIOT, A. Monstruosités et déformations [of the shell] chez les Mollusques. Bull. Soc. Reims, i, pp. 46–58.
411. TYE, G. S. On the periostracum of *Helix arbustorum*, Müll. Conchologist, ii, pp. 53 & 54.
412. ULRICH, A. Palaeozoische Versteinerungen aus Bolivien. Steinmann's Beitr. Geol. Palæont. S.-Amer. i, 116 pp., 5 pls. Stuttgart: 1892, 8vo.
413. ULRICH, E. O. New Lower Silurian *Lamellibranchiata* chiefly from Minnesota Rocks. Rept. Geol. Surv. Minnesota, No. 19, pp. 211–248, figg.
414. —. New *Lamellibranchiata*. Am. Geol. x, pp. 96–104, 1 pl.
415. UPHAM, W. Recent fossils of the Harbour and Back Bay, Boston. P. Bost. Soc. xxv, pp. 305–316.
416. VAUGHAN, T. W. Mollusks of Dorchest Bayou and Lake Bisteneau, Louisiana.  
VERRIL, G. E. [See PILSBRY (295).]
417. VIALLANES, H. Recherches sur la filtration de l'eau par les Mollusques et applications à l'Ostréiculture et à l'Océanographie. C.R. cxiv, pp. 1386–1388.
418. VINCENT, E. Observations sur "*Gilbertia inopinata*, Mor." Bull. Soc. Mal. Belg. 1891 (1893), pp. lii–lv.  
Reply, see COSSMANN (86).
419. —. Description d'une nouvelle espèce de "*Pholadidæ*" [*Aspidopholas stainieri*] des Environs d'Anvers. T. c. pp. lxxxvi–xci, figg.
420. —. Contribution à la paléontologie de l'Eocène Belge *Pholadidæ*. Mem. Soc. Mal. Belge, 1891 [1893], pp. 164–168, 1 pl., 1 fig.
421. VIZE, J. E. Land and Freshwater Shells [of Hereford]. Tr. Woolhope Nat. 1886–9 (1892), pp. 180–188.
422. WACKWITZ, J. Beiträge zur Histologie der Mollusken-Muskulatur, speziell der Heteropoden und Pteropoden. Zool. Beitr. iii, pp. 129–160, 3 pls.
423. WALKER, B. The Shell-bearing *Mollusca* of Michigan. Naut. vi, pp. 13–19, 31–35, 42–47, 63–67, 1 pl.
424. WALTON, J. The *Mollusca* of Monroe County, N. Y. P. Rochester Acad. ii, pp. 3–19, 8 pls.
425. WARREN, [Miss] A. Contributions towards a list of the Marine *Mollusca* of Killala Bay, Ireland. Journ. Conch. vii, pp. 98–107.

426. WATSON, R. B. The relation of the Land and Freshwater *Mollusca* of the Madeiran Is. to those known elsewhere. *T. c.* pp. 1-7.
427. —. Note sur l'habitat de l'*Ovula carnea*, Poiret. *J. de Conch.* 1892, p. 208.
428. WESTERLUND, C. A. Spicilegium Malacologicum. Neue Binnen-conchylien in der paläarktischen Region. *Verh. z.-b. Wien.* xiii, (Abh.), pp. 25-48.
429. —. Faunula Molluscorum Hispalensis. *An. Soc. Esp.* xxi, pp. 381-390.
430. —. Spicilegium Malacologicum. Neue Binnen-conchylien in der paläarktischen Region, III. *Nachr. mal. Ges.* 1892, pp. 185-201.  
— [For 3 n. spp. of *Cecilianella* described, see CARUANA-GATTO (60).]
431. WHIDBORNE, G. F. A monograph of the Devonian Fauna of the South of England. Vol. ii, pt. 2, pp. 57-88, pls. vi-x (Pal. Soc.).
432. WHITEAVES, J. F. The *Orthoceratidæ* of the Trenton Limestone of the Winnipeg Basin. *Tr. R. Soc. Canada*, ix (4), pp. 77-90, 7 pls.
433. WILLEM, V. Contributions à l'étude physiologique des organes des sens chez les Mollusques. I. La vision chez les Gastropodes Pulmonés. II. Les Gastropodes Pulmonés perçoivent-ils les rayons ultra-violet? III. Observations sur la vision et les organes visuels de quelques Mollusques, Prosobranches, et Opisthobranches. *Arch. Biol.* xii, pp. 57-149, 1 pl. Abstr. in *J. Micr. Soc.* 1892, p. 596.
434. WILLIAMS, J. W. The Shells of Stourport. *Sci. Goss.* pp. 226-228.
435. WILLIAMSON, (Mrs.) M. B. An annotated list of the Shells of San Pedro Bay and vicinity. . . . With a description of two new species by W. H. Dall. *P. U. S. Nat. Mus.* xv, pp. 179-219, 5 pls.  
WILSON, E. [See HUDLESTON & WILSON (192).]
436. WIRÉN, A. Histologiska meddelanden om *Chaetoderma nitidulum*, Lovén. *Biol. Fören.* iii, 1890, pp. 37-49.
437. WITCHELL, C. A., & STRUGNELL, W. B. The Fauna and Flora of Gloucestershire. Stroud: 1892, 8vo. *Mollusca*, pp. 171-177.
438. WOEHRMANN, S. VON, & KOKEN, E. Die Fauna der Raibler Schichten vom Schlernplateau. *Z. geol. Ges.* xlv, pp. 167-223, 11 pls.  
Almost all molluscan. A preliminary note of the new genera of *Gastropoda* appeared in *JB. Mineral.* 1892, ii, pp. 25-36.  
See KOKEN (212).
439. WOODWARD, B. B. On the mode of growth and the structure of the Shell in *Velates conoideus*, Lamk., and other *Neritidæ*. *P. Z. S.* 1892, pp. 528-540, 2 pls. Abstr. in *J. R. Micr. Soc.* 1893, p. 30.

440. [WOODWARD, B. B.] On the radula of *Paludestrina jenkinsi*, Smith, and that of *P. ventrosa*, Mont. Ann. N. H. ix, pp. 376-378, figg.
441. ZIMMERMANN, K. W. Ueber den Kernteilungsmodus bei der Spermatogenese von *Helix pomatia*. Verh. Anat. Ges. v, 1891, pp. 187-193.

## II.—ANATOMY, PHYSIOLOGY, &c.

### 1. GENERAL.

Comparative anatomy of the *Mollusca*; LANG (218).—Organization, development, &c., of the *Mollusca*; COUPIN (88).—Some points in Molluscan anatomy; SIMROTH (361).—The asymmetry of Univalve *Mollusca* is discussed very fully by FISCHER & BOUVIER (131), who in the course of their paper describe and figure the main points in the anatomy and the nervous system of: *Chrysodomus contraria*, *Fulgur perversus*, *Lanistes bolteniana*, and *Ampullaria insularum*.—Coiling of Univalves; FISCHER & BOUVIER (132).—Asymmetry of *Gastropoda*; BUCHNER (51).—Asymmetry of Univalves; PELSENEER (284).—On the dextral nature of certain *Gastropoda* called "sinistral"; PELSENEER (283).—Anatomical observations on *Gastropoda*; BOUVIER (39).—Physiological observations on *Pulmonata*; CUÉNOT (100A).—Anatomy of *Aurinia gouldiana*, *Trophon (Aspella) scalarioides*, *Cocculina spinigera*, *Margarita (Turricula) imperialis*, *Pleurotomaria quoyana*, *P. adansoniana*, and of the *Pelecypoda Septibranchiata*; DALL (101) 1889.—Anatomy of parts of *Limax natalianus*, n. sp.; MIKHAËLIS (254).—Anatomy of *Ariolimax columbianus*, Gould, and *Hesperarion* [n. g.] *niger*, Coop.; SIMROTH (359).—Anatomy of *Pseudomilax*, *Selenochlamys*, *Trigonochlamys*; SIMROTH (351).—Anatomy of *Panda atomata*, Gray; HEDLEY (177).—Anatomy of *Sagda similis*, *Cysticopsis tenerrima*, *Ægista platyomphala*, *Caracolus orbiculata*; PILSBRY (292).—Anatomy of *Caracolus rostratus*, *acutus*, *Hemitrochus salvatoris*; PILSBRY (289).—Anatomy of *Cryptazeca monodonta*; BARROIS (13).—Anatomy of *Amphibola*; BOUVIER (40).—Anatomy with figg. of *Siphonaria gigas*, Less.; HALLER (166), who concludes that *Siphonaria* is an Opisthobranch, ranking next to *Umbrella*.—Anatomy and morphology of *Naticide* and *Calyptæide*; HALLER (167).—Anatomy of *Semisinus*, *Pachychilus*, *Ceres*, *Helicina*; FISCHER & CROSSE (133).—Anatomy of *Scaphopoda*; PLATE (304, 305, & 307).—Anatomy and histology of *Proneomenia sluiteri*; HEUSCHER (187).—Histological notes on *Chaetoderma nitidulum*, Loven; WIRÉN (436).—Some points in the morphology of *Pelecypoda*; KELLOG (205).—Anatomy of *Dipsas plicata*, Lea; ISHIKAWA (192A).—Anatomy and physiology of *Pholas dactylus*; DUBOIS (116).—Anatomy of *Cuspidaria (Neaera) cuspidata*, Olivi; GROBBEN (163).

## 2. SHELL AND INTEGUMENT.

Formation and growth of the shell in *Mollusca*, a *résumé*, including some new observations, and with a very full bibliography; MOYNIER DE VILLEPOIX (267).—Structure and formation of the Molluscan shell; THIELE (403A).—On the mode of production of the calcareous deposit of the shell of *Mollusca*; MOYNIER DE VILLEPOIX (267).—Development of shell in coiled stage of †*Baculites compressus*, Say; BROWN (47).—Coiling of shell in *Mollusca glossophora*; BOWELL, Sci. Goss. 1892, pp. 127 & 128.—Note on the coiling of the shell in the embryos of *Gastropoda*; FISCHER, H. (126).—Periostracum of *Helix arbustorum*; TYE (411).—Repair of shell in *Helix aspersa*; MOYNIER DE VILLEPOIX (266).—Periostracum of *Cyclophorus zebrinus*, Bens.; SMITH (372).—Inner palatal folds in fossil *Cerithiidae* and *Melaniidae*; OPPENHEIM (274).—Mode of growth and structure of the shell in *Velates conoideus*, Lanck., and other *Neritidae*; WOODWARD (439).—On the integument of Chitons; THIELE (405).—On the margin of the mantle of *Acephala siphoniata*; RAWITZ (312).—Growth of the shell of the mussels in Lake Wörther (Carinthia); GALLENSTEIN (142).—Pearl of unusual form and colour; MOEBIUS (256).—On the colouration of the tegument of *Cephalopoda*; JOUBIN (203): The movements of the chromatophores are due to the nervous excitation of their essentially motile amiboïd coloured protoplasm, and not to the presence of special motor muscles.—On the chromatophores of *Cephalopoda*; PHISALIX (285), PALLECCHI (275).—Diffuse pigmentation of the epidermis [not periostracum] of the oyster due to prolonged exposure to the light; SCHIELDT (334).

## 3. MUSCULAR SYSTEM.

Epipodium of *Mollusca*; THIELE (403).—Histology of the muscular system of *Heteropoda* and *Pteropoda*; WACKWITZ (422).—Muscle-fibres of *Cephalopoda*; BALLOWITZ (12).—Micro-structure of the cartilages of *Cephalopoda*; ZACHARIADES, CR. Soc. Biol. iii, p. 454.—Muscles of the radular apparatus in *Helix*; LOISEL (232).

## 4. DIGESTIVE SYSTEM.

Jaws and radula of *Nanina*, 2 species, *Microcystina sappho*, *Helicarion musgravi*, *Cristigibba macgregori*, *Chloritis*, 2 species, *Hadra broadbenti*, *Geotrochus*, 6 spp., and *Succinea simplex*, from British New Guinea; HEDLEY (174).—The radular apparatus in *Helix* is actuated by one paired and three unpaired muscles; LOISEL (232).—Radulæ and jaws of *Helix*; SCHUBERTH (338).—Dentition of some New Zealand non-marine *Mollusca*; SUTER (393).—Radulæ of *Paludestrina jenkinsi* and *ventrosa*; WOODWARD (439).—On the minute structure of the posterior salivary glands of the *Cephalopoda*; RAWITZ (311).

## 5. CIRCULATORY SYSTEM.

Blood and lymphatic glands of *Mollusca*; CUÉNOT (99).—Analyses of the blood of *Mollusca*; GRIFFITHS (162).—A globulin is obtainable from the blood of *Patella vulgata*, which is colourless and contains no metal; this, which has a respiratory value, it is proposed to call achroglobine; GRIFFITHS (159).—Respiratory globulin in the blood of Chitons; GRIFFITHS (160).—On the blood of the *Pelecypoda*; GRIESBACH (158).—The respiratory value of Hæmocyannin: CUÉNOT, C.R. cxv, pp. 127 & 128, finds that the blood of *Helix pomatia* can absorb more oxygen than an equal volume of water.

## 6. RESPIRATORY SYSTEM.

Structure of the gill in *Amusium dalli*, *Dimya argentea*, and *Arca ectocomata*; DALL (101), 1889, who also discusses Pelseneer's classification of the *Pelecypoda*.

## 7. EXCRETORY AND SECRETORY SYSTEM.

Excretion in the *Pulmonata*; CUÉNOT (100).—The alleged anal eye of larval Opisthobranchs is, in fact, the permanent kidney; MAZZARELLI (248).—On the nephridia of Prosobranchs; ERLANGER (120).—On the urinary function of the organ of Keber in *Acephala*; LETELLIER (219).—FISCHER, H. (125) treats very fully of the morphology of the liver of *Gastropoda*, and briefly compares it with that of *Brachiopoda*, *Bryozoa*, and *Rotifera*. He distinguishes three stages in its evolution, and summarizes its principal variations. He does not consider it of practical value in classification.—Development of the liver in *Paludina*; FISCHER, H. (127).—A detailed description of the byssus glands of *Barbatia helblingia* is given by SLUITER (362).—Formation of the byssus in some *Pelecypoda*; JOBERT (199).—On the phylogeny of the byssus-apparatus of the *Pelecypoda*; THIELE (404).

## 8. NERVOUS SYSTEM.

Sensory nervous system of *Mollusca* [*Limax* and *Arion*]; RETZIUS (315).—Innervation of the Cerata of some *Nudibranchiata*; HERDMAN & CLUBB (184).—*Heteropoda* are streptoneurous; PELSENEER (279).—Nervous system of *Nerita polita*; BOUTAN (38).—Analyses of the nervous tissue of some *Mollusca*; GRIFFITHS (161).

## 9. SENSORY ORGANS.

Vision in the *Pulmonata*, *Opisthobranchiata*, and *Prosobranchiata*; WILLEM (433).—The alleged anal eye of larval Opisthobranchs MAZZARELLI (248) finds is, in point of fact, the permanent kidney.—On the eye of *Scutum*; PELSENEER (280).

Position and character of the Osphradia in *Acmæa*; DALL (101) 1889.

## 10. GENERATIVE ORGANS.

Genitalia of *Nanina*, 2 species, *Chloritis leei*, *Hadra broadbenti*, and *Geotrochus*, 6 species, from British New Guinea; HEDLEY (174).—Anatomy of the genital apparatus of *Helix*; SCHUBERTH (338).—Morphology and systematic value of the genital apparatus in *Helix*; JHERING (195).—On the mode of nuclear division in the development of the Spermatozoa of *Helix pomatia*; ZIMMERMANN (441).—Hermaphroditism of *Nudibranchiata sacoglossa*; PELSENEER (281).—Oysters of the N. W. Coast of the United States are hermaphrodite and viviparous; SCHIELDT (335).

## 11. EMBRYOLOGY.

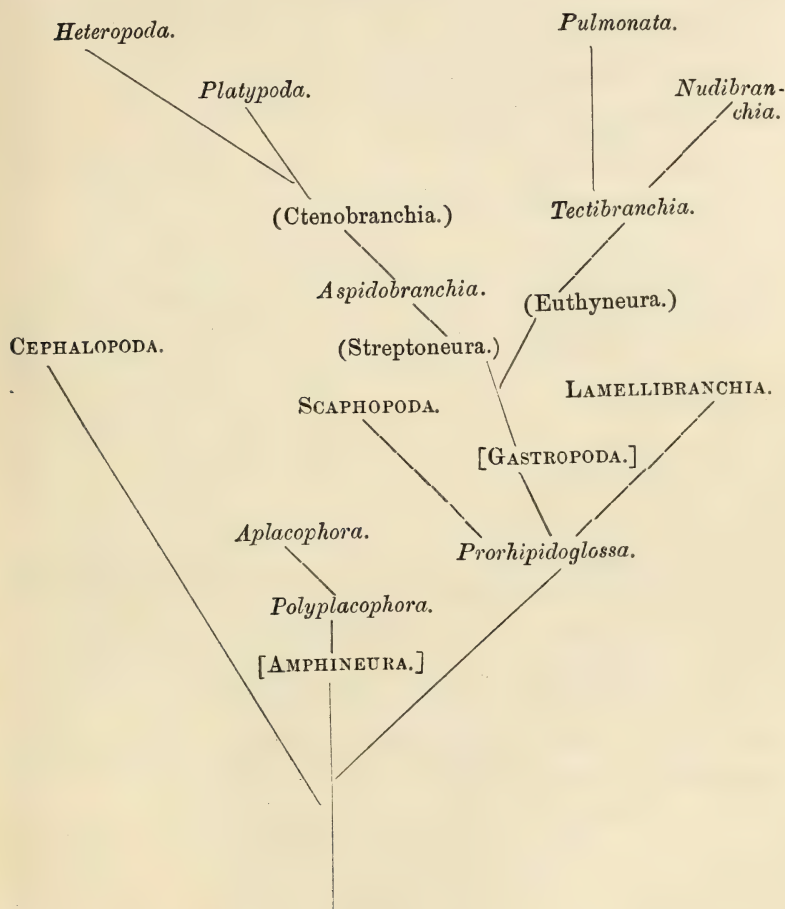
Development of *Cephalopoda*; KORSCHULT (214).—Differentiation of the germinal layers in *Cephalopoda*; KORSCHULT (215).—Notes on the embryology of the *Pteropoda* [in Russian]; КНИПОВИЧ (210).—Development of *Bythinia tentaculata*; ERLANGER (118).—Development of *Capulus hungaricus*; ERLANGER (119).—Cleavage of the ovum in *Crepidula fornicata*; CONKLIN (81).—Embryology of Chiton; METCALF (253).—Embryogeny of *Proneomenia*; PRUVOT (310).—Development of *Dreissen[si]a polymorpha*; KORSCHULT (213).

## 12. PHYLOGENY AND CLASSIFICATION.

PELSENEER (278) classifies the *Mollusca* as follows:—

<i>Amphineura</i> . . . . .	{	<i>Polyplacophora</i> .
	{	<i>Aplacophora</i> .
<i>Gastropoda</i> . . . . .	{	<i>Streptoneura</i> . . . . . {
		<i>Aspidobranchia</i> . . . . . {
		<i>Ctenobranchia</i> . . . . . {
		<i>Opisthobranchia</i> . . . . . {
		[including <i>Pteropoda</i> ]. . . . . {
		<i>Euthyneura</i> . . . . . {
		<i>Pulmonata</i> . . . . . {
<i>Scaphopoda</i> . . . . .		<i>Solenochoncha</i> .
<i>Lamellibranchia</i> . . . . .	{	<i>Protobranchia</i> .
		<i>Fillibranchia</i> .
		<i>Pseudolamellibranchia</i> .
		<i>Eulamellibranchia</i> .
		<i>Septibranchia</i> .
<i>Cephalopoda</i> . . . . .	{	<i>Dibranchia</i> .
		<i>Tetrabranchia</i> .

The phylogenetic relationships of these groups are expressed in the following tree :—



Pelseneer concludes that the affinities of the *Mollusca* are to be sought in the *Polychæta errantia*, and that, of existing forms, the *Eunicidæ* seem, from the *ensemble* of their organization, the least removed from the *Mollusca*.

Classification of *Cephalapoda*; BLAKE (25).—Morphology and Phylogeny of †*Stephanocerus zigzac* series; BUCKMAN (53).—Phylogenetic relationships of the species of †*Olicostephanus* from the Speeton Clay; PAVLOW (277).

PILSBRY (294) invites criticism on the following proposed classification of the *Helices*:—

## Group I. MACROON.

- Genus *Acavus*.
- Genus *Stylodonta*.
- Genus *Helicophanta*.

## Group II. BELOGONA.

- Genus *Helix*.
- Genus *Leucochroa*.
- Genus *Allognathus*.
- Genus *Cochlostyla*.
- Genus *Polymita*.
- Genus *Hemitrochus*.
- \*Genus *Glyptostoma*.
- \*Genus *Acanthinula*.
- \*Genus *Valonia*.

## Group III. TELEOPHALLA.

- Genus *Sagda*.
- Genus *Cysticopsis*.

## Group IV. EPIPHALLOPHORA.

- Genus *Caracolus*.
- Genus *Camæna*.
- Genus *Camenella*.
- Genus *Obba*.
- Genus *Chloritis*.
- Genus *Papuina*.
- \*Genus *Planispira*.

## Group V. HAPLOGONA.

- Genus *Polygyra*.
- Genus *Eudodonta*.
- Genus *Patula*.
- Genus *Trochomorpha*.
- Genus *Anoglypta*.

## Group VI. POLYPLACOGNATHA.

- Genus *Punctum*.
- Genus *Laonia*.

## GENERA OF DOUBTFUL POSITION.

In addition to those marked \* above, the systematic position of the following genera is doubtful:—

- |                     |                      |
|---------------------|----------------------|
| <i>Strobilops</i> . | <i>Polygyratia</i> . |
| <i>Ampelita</i> .   | <i>Macrocyclus</i> . |
| <i>Pedinogyra</i> . | <i>Salaropsis</i> .  |

VON JHERING (195) recognizes 7 genera in *Helicidae*, which he arranges phylogenetically thus:—

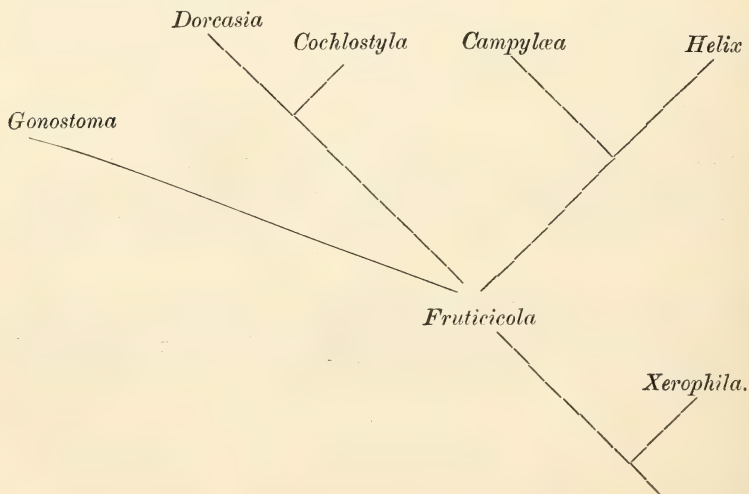
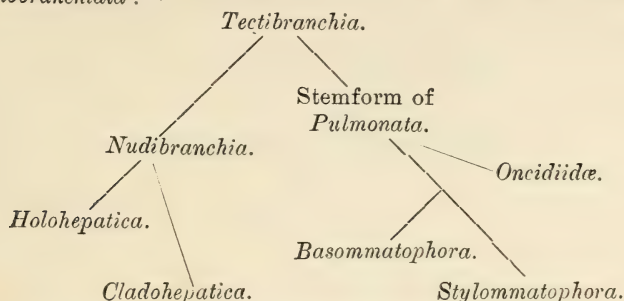


PLATE (306), p. 42, thus expresses the phylogeny of the *Pulmonata* and *Opisthobranchiata* :—



The *Nudibranchiata* are *Pleurobranchæa* specialized by the loss of a gill. The *Tritoniidae* are the oldest forms, from these spring the *Doridiidae* (through the *Polyceridae*) and the *Eolidiidae*, of which last the *Elysiæ* (or *Sacoglossa*) are specialized forms ; PELSENEER (282).

BERGH (17) classifies the *Gasteropoda Nudibranchiata* as follows :—

#### A. NUDIBRANCHIATA CLADOHEPATICA.

Fam. <i>Aeolidiidae</i> .	Fam. <i>Scyllaeidae</i> .
Fam. <i>Tethymelibidae</i> .	Fam. <i>Phylliroidae</i> .
Fam. <i>Lomanotidae</i> .	Fam. <i>Pleurophyllidiidae</i> .
Fam. <i>Dotonidae</i> .	Fam. <i>Pleuroleuridae</i> .
Fam. <i>Dendronotidae</i> .	Fam. <i>Tritoniidae</i> .
Fam. <i>Bornellidae</i> .	

#### B. NUDIBRANCHIATA HOLOHEPATICA.

- Fam. *Doridiidae cryptobranchiatae*.
- Subfam. *Bathydorididae*.
- Subfam. *Hexabranchidae*.
- Subfam. *Archidorididae*.
- Subfam. *Discodorididae*.
- Subfam. *Diaululidae*.
- Subfam. *Cadlinidae*.
- Subfam. *Kentrodorididae*.
- Subfam. *Platydorididae*.
- Subfam. *Chromodorididae*.
- Subfam. *Miamiridae*.

(*Doridiidae cryptobranchiatae*).

#### Fam. *Porostomata*.

- Subfam. *Doriopsidae*.
- Subfam. *Phyllidiidae*.

#### Fam. *Doridiidae phanerobranchiatae*.

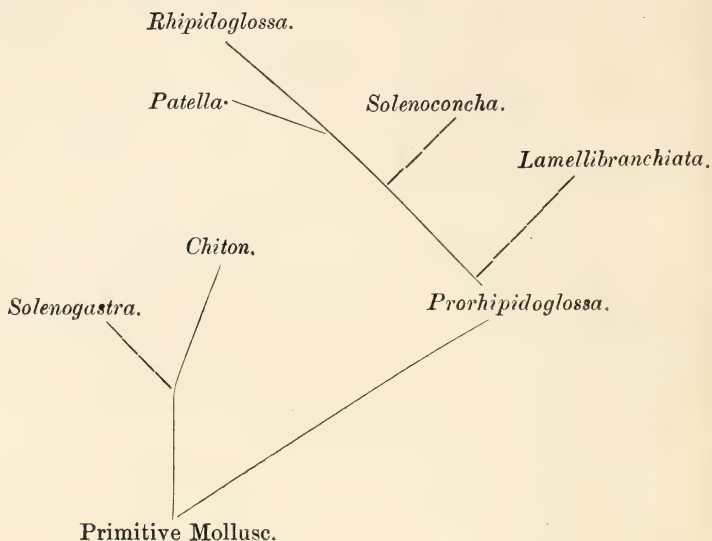
- Subfam. *Polyceradae*.
- Subfam. *Goniodorididae*.

(*Doridiidae phanerobranchiatae*).

#### Fam. *Corambidae*.

Systematic position of *Naticidae* and *Calyptæidae* ; HALLER (167).—  
Tables of phylogenetic relationships of *Eulimidae* and *Pyramidellidae*  
from the Tertiaries of Piedmont and Liguria ; SACCO (325).

The *Scaphopoda* are considered by PLATE (307) to have branched off from the *Prorhipidoglossæ* after the *Pelecypoda* and before *Patella*; he expresses his conclusions thus:—



Classification of the *Pelecypoda*, based partly on the gill-structure, partly on the hinge characters; GROBBEN (163, 164).

Origin of the genera of non-marine *Mollusca*; COOKE (82).—Origin of some varieties of *Mollusca*; FAURE (124).—Classification of varieties of *Helix hortensis* and *H. nemoralis*; EYRE (121), MACDONALD (234).

### 13. STRAY NOTES.

Habits of the Mediterranean *Argonaut* with figure of position when swimming; LACAZE-DUTHIERS (217).—Burrowing habits of certain land Molluscs; COLLINGE (78).—Perforation of limestone rocks by *Lithodomus*; CARAZZI (57).—Comparison of movements of rotation in *Articulata* and *Mollusca*; PETIT, Act. Soc. L. Bord. xlv, pp. 349–351.—Fertility of *Physa heterostrophæ*, Say; POTEAT (309).—Effects on a Snail of a median section of its brain; PETIT, Act. Soc. L. Bord. xlv, pp. 119 & 120, 1 pl.—Phosphorescence in *Latia lateralis*, Gould; SUTER (394).—Filtration of water by *Mollusca*; VIALLANES (417).—Appearance of *Mollusca* in isolated ponds; REID, Tr. Norw. Soc. v, pp. 279 & 280.—Locomotion (Bewegung) of certain tropical *Mollusca*, more especially byssiferous examples; SLUITER (362).—Disappearance of *Spondylus gæderopus* and other species from Maltese waters; CARUANA-GATTO (59).—W. A. GAIN, Brit. Nat. 1892, has a series of notes on the subject of varieties. He begins by deprecating the naming of slight variations from the normal forms, p. 15: in another part, p. 233, he places on record two worthless variations as new to Britain.—Monstrosities and deformations

in the Molluscan shell; TUNIOT (410A).—Monstrosities of *Littorina rudis*, Maton; SYKES (396).—Effects of freezing and desiccation on Snails; KOCHS, Biol. Centralbl. xii, pp. 337 & 338.—Dissolution of the shells of *Mollusca* in the digestive cavity of fish and the bearings of this on fossilization; CHAPER, Bull. Soc. Géol. xx, pp. 114–117.—“Instinct and genera”; HEMPHILL (181).—Parasites of freshwater *Mollusca* of Cairo; SONSINO, in Festschr. R. Leuckarts, pp. 134–146, 1 pl.—*Cercariæ* of *Helix hortensis* and its development into *Distomum*; BLOCHMANN, CB. Bakt. Parasit. xii, pp. 649–652.—*Mollusca* consumed as food by Birds; LOENS, Zool. Gart. xxxiii, pp. 49–51.

#### 14. ECONOMICS.

Uses of shells among the Papuans; HEDLEY (172A).—*Paludina japonica*, Mart., for sale in the Chinese market, San Francisco; WOOD, Naut. v, p. 114.—Japanese *Anodonta*, brought to San Francisco markets; WOOD, Naut. vi, p. 51.—Freshwater *Mollusca* in the kitchen middens of Florida; MOORE, Am. Nat. xxvi, p. 914.—Application to Oyster culture of the filtration of water by *Mollusca*; VIALLANES (417).

#### 15. COLLECTION, PRESERVATION, MUSEUMS, &C.

Instructions for collecting, &c.; DALL (105).—Method of taking Water-snails; LOENS (227).—Collecting notes; SIMPSON (347).—Shell collecting at Eastport, U.S.; ROPER, Naut. vi, pp. 49 & 50.—Notice of the collection of H. A. Ward; PILSBRY, Science, xx, p. 369.—Schlüter's Catalogue a simple list: the generic and subgeneric values attributed to him cannot stand; FISCHER (129A).

### III.—DISTRIBUTION.

#### GEOGRAPHICAL.

##### NON-MARINE MOLLUSCA.

##### a. PALEARCTIC ZONE.

New palæarctic species; WESTERLUND (428 & 430).

##### 1. Septentrional Region.

British Isles: The Conchological Society's List, Journ. Conch. vii, pp. 49–66.—Remarks on distribution in the British Isles; SCHARFF (330).—Catalogues of British Slugs; COLLINGE (80): summary of *ib.*; COCKERELL (72 & 74).—Review of British *Arionidæ*; COLLINGE (79): and criticism by COCKERELL (70).—A list of species and varieties of non-marine *Mollusca*, alleged to be peculiar to the British Islands, occurs

in Wallace's *Island Life*, 2nd edition, pp. 357-359, republished by the compiler; COCKERELL, *Nature*, xlv, pp. 76 & 77 : see also SCHARFF, *t. c.*, p. 173.—Cumberland : non-marine of; SMITH (363).—Derbyshire : additions to list; ADAMS (2).—Devon : additions to the S. Devon list; OLDHAM (272).—Dorset : bibliography of non-marine forms; SYKES (397).—Gloucestershire : list; WITCHELL & STRUGNELL (437).—Herefordshire : list; BOYCOTT (41), VIZE (421).—Merionethshire : specimens taken in; CHASTER (63).—Northamptonshire : bibliography; CRICK (92).—Sussex : bibliography, *Conchologist*, ii, pp. 30-33.—Westmoreland : non-marine of; SMITH (363).—Worcestershire : shells of Stourport; WILLIAMS (434).

Scotland : additions to the Scotch fauna; ROEBUCK (318).—Species in Bute; SCOTT (341).—List of shells from Eigg; MCMURTRIE (237).

Ireland : Irish non-marine; SCHARFF (332).—*Planorbis riparius*, West, added to the British fauna from Lough Swilly; MILNE, *Irish Nat.* 1892, p. 192 [misidentification, = *P. nautilus*, Linn.].—*Helix lampra*, alleged new species [= *H. ericetorum*]; WESTERLUND (428).

Channel Isles : *Pupa ringens* in Guernsey; MARQUAND, *Journ. Conch.* vii, p. 44.

Belgium : *Anodonta lhotellerii*, n. sp.; DROUET (115).

France : *Mollusca* of the Seine-Inférieure; BUCAILLE (50).—*Alexia armoricana*, n. sp. [?], W. coast of France; LOCARD (222).—*Mollusca* of the Department of the Somme; BIZET (24).—List of bivalve *Mollusca* collected in the Seine near Elbeuf [of no value]; LANCELEVÉE, *Bull. Soc. d'Elbeuf*, x, pp. 51 & 52.

Germany :—Baden : list of the shells of the North Baden Black Forest; SANDBERGER (327).—Bavaria : *Unio clessini*, n. sp., from the Danube [*i.e.* the Donau] at Lauingen; DROUET (115).—Borkum Is. : list of 30 species, including *Alexia myosotis*, Drap., new to Germany, and *Assimineia grayana*, Leech; SCHNEIDER (337).—Brandenburg : occurrence of *Helix ericetorum* and *H. candicans* at Landsberg-a-Warthe; KRAUSE, *SB. nat. Fr.* 1892, p. 141 : rare *Mollusca* of Mark Brandenburg; MARTENS (242).—Saxony : supplement to list of *Mollusca* from near Leipzig; EHRMANN (117).—Silesia : notes on 6 species; LOENS (228).—Westphalia : *Molluscan* fauna; HESSE (185).—*Gastropoda* of Münsterland; LOENS (230).—Supplemental list of 30 species; LOENS (229).—Wurttemberg : *Molluscan* fauna of Saulgau; MOENIG (259).

Sweden : *Hyalinia upsalensis*, n. sp., WESTERLUND (428).

Switzerland : *Helix (Patula) chaperi*, n. sp., WESTERLUND (428).—Recent *Mollusca* of Appenzell and St. Gallen; MARTENS (240).—*Molluscan* fauna of Graubundens; STEIN (383).—*Mollusca* found at Meiringen; HORSLEY (190).—List of 46 species, with varieties, from Richisau (Canton Glarus); BLUM (27).—*Mollusca* of Pays-d'Enhaut, Vaudois; PITTIER & GÉTAZ, *Bull. Soc. Vaud.* xxvii, pp. 209 & 210.

2. *Circum-Mediterranean Region.*

Species of *Helix* (*Xerophila*), with 20 new species ; POLLONERA (308).

Spain : *Helix*, 4 new species ; *Cionella disparata*, n. sp. ; WESTERLUND (428).—*Helix*, 5 new species : *Pupa retracta*, *Buliminus hispalensis*, *Cionella virginea*, *Physa clathrata*, *Melanopsis harpa*, *Neritina mixta*, n. spp. ; WESTERLUND (430).—*Mollusca* of the Pyrenees, French and Spanish : FAGOT (122).

France : *Mollusca* peculiar to the extreme S. W. of France ; FOLIN (135).—*Pupa*, 4 new species from the Pyrenean Depts. ; WESTERLUND (428).—Malacological fauna of Carcassonne ; BAICHÈRE (10).—*Mollusca* of the Peninsular of Sainte-Lucie (Aude) ; FAGOT (123).—Alleged new species of *Lartetia*, *Moitessieria*, *Bithinella*, and *Acme*, from near Avignon ; NICOLAS (269).—*Belgrandia coutagnei*, n. sp. [?], Avignon ; LOCARD (223).—Terrestrial *Mollusca* of other Isles in the roadstead of Marseilles ; COUTAGNE (89).

Italy : *Pupa honesta*, n. sp. ; WESTERLUND (430).—*Helix neptuni*, n. sp. ; WESTERLUND (428).—Catalogue of species in and around the Province of Modena ; PICAGLIA (286).—List of species from Lake Lugano and its shores ; BROEMME (45).—Species from Ascoli-Piceno ; MASCARINI (247).

Sardinia : *Helix modestissima*, n. sp. ; WESTERLUND (428).

Capri Is. : List of 26 species ; BLUM (26).

Sicily : *Hyalinia*, 2 new species ; *Helix malthorella*, n. sp. ; WESTERLUND (428).—*Pupa refuga*, *Pomatias eircticus*, n. spp. ; WESTERLUND (430).—*Pseudamnicola nebrodensis*, n. sp. [= *Vestita*, Benoit] ; KOBELT, in ROSSMAESSLER (322) v.

Malta : *Clausilia melitensis*, n. sp., CARUANA-GATTO (58) ; *Cæcilianella*, 3 new species, *id.* (60) ; Occurrence of *Assiminea littorina*, *id.* (61).—*Cionella*, 3 new species ; WESTERLUND (430).

Austro-Hungary :—Carinthia : *Anodonta*, 2 new species [?] ; KOBELT, in ROSSMAESSLER (322) vi : Growth of the shell of the mussels in Lake Wörther ; GALLENSTEIN (142).—Carniola : *Clausilia vestigans*, n. sp., WESTERLUND (428).—Dalmatia : *Pupa appelinsi*, n. sp. ; WESTERLUND (428).—Hungary : *Mollusca* of the environs of Güns, 69 species ; SZÉP (398).—Siebenburgen : *Clausilia denbeli*, n. sp. ; WESTERLUND (428).—Bosnia : List of species with *Zonites tenerrimus*, *Helix osoria*, *Delima optabilis*, n. spp. (1890), BRANCSIK (42) ; *Bythinella bosniensis*, n. sp., CLESSIN (65) ; *Clausilia calabacensis*, n. sp., WESTERLUND (428) ; *Helix broemmei*, n. sp., from Acarnania, KOBELT, in ROSSMAESSLER (322) v ; *Pseudamnicola euboica*, n. sp., Eubœa ; KOBELT, in ROSSMAESSLER (322) v.

Greece : *Unio thiessæ*, n. sp., *Anodonta*, 3 new species ; DROUET (115).—*Helix giurica* and *Clausilia broemmei*, n. spp., with notes on other species and some new varieties from Greece and Giura Is. ; BËTTGER (32).—Corfu : *Unio helenæ*, n. sp. ; DROUET (115).—Sofrauo Is. [? Sofraua Nisia] : *Buliminus mestus*, n. sp. ; WESTERLUND (428).

Crete : *Hyalinia spratti*, *Helix medea*, n. spp. ; WESTERLUND (428).

Roumania : *Buliminus montandoni*, n. sp., from Dobrudscha ; WESTERLUND (428).

Caucasus : rapacious *Mollusca* ; SIMROTH (351) : *Limacidæ*, with 4 new species, and *Testacellidæ* ; SIMROTH (352) : Testaceous *Mollusca*, with *Hyalinia horsti*, n. sp. ; BÆTTGER in SIMROTH (355).

Asia Minor : *Buliminus morradi*, *ponsonbyi*, n. spp. ; WESTERLUND (428).

Syria : *Helix*, 2 new species, *Clausilia calopleura*, n. sp. ; WESTERLUND (428).

Palestine : *Helix patriarcharum*, *Buliminus granulatus*, n. spp. ; WESTERLUND (428).

Egypt : *Helix*, 2 new species ; WESTERLUND (428).—Libya : *Helix apaturia*, n. sp. ; WESTERLUND (428).

Tunis : *Helix hypsa*, n. sp. ; WESTERLUND (428).

Algeria : *Helix*, 4 new species, *Buliminus djurdjurenensis*, n. sp., *Cionella*, 2 new species ; WESTERLUND (428).

Morocco : *Cionella extrema*, n. sp. ; WESTERLUND (428).

### 3. Central Asiatic Region.

Transcaspia : 11 forms enumerated, including 3 new species and 2 new varieties ; ROSEN (321).—Turkestan : *Limax natalianus* from Semiretschje ; MIKHAËLIS (254).

### 4. Chinese Region.

*Mollusca* from the Valley of the Blue River, with a large number of new species ; HEUDE, 1890 (186) ; MOELLENDORF (257) criticises Heude.—Hainan Is. : 4 species added to fauna ; FISCHER (130).

### 5. Japanese Region.

Liu-Kiu Is. : List of 19 species from the Middle Is., *Ennea densecostata* and *Trochomorpha fritzei*, n. spp. ; BÆTTGER (33).

### 6. Atlantidean Region.

Madeira : relation of the non-marine *Mollusca* to those found elsewhere ; WATSON (426).

### b. PALÆOTROPICAL AFRICAN ZONE.

Twelve new species from N. E. Africa ; MARTENS (243).

### 7. Central African Region.

Becuanaland : *Buliminus layardi*, n. sp. ; MELVILL & PONSONBY (251).—Tanganika : illustrations of freshwater *Mollusca* from Lake Tanganika ; BOURGUIGNAT (36) 1888 : *Cyclostoma burtoni*, n. sp. ;

ANCEY (5).—Uganda: *Helix bellula* and *Ennea stuhlmanni*, n. spp.; MARTENS (241).—Usambara: *Ennea grossa*, n. sp.; MARTENS (244).—Victoria Nyanza: *Limnæa nyanzæ*, *Physa trigona*, n. spp., *Vivipara*, 3 new species from Victoria Nyanza; MARTENS (241): *Paludina constricta* and *Spatha subæquilatera*, n. spp.; MARTENS, Conch. Mittheil. iii, 1889: shells from Victoria Nyanza, with *Viviparus*, 3 new species; SMITH (366): *ib.* with *Ampullaria*, 2 new species, *Planorbis victoriæ* and *Sphærium nyanzæ*, n. spp.; SMITH (366A).

### 8. West African Region.

*Pseudoglossula*, n. sect., *Stenogyra*, with 2 new species; BÆTTGER (34).—Angola: *Buliminus quisqualis*, n. sp.; MELVILL & PONSONBY (251).—Cameroons: *Achatina pyramidella*, *Ennea conospira*, *Cyclophorus preussi*, n. spp.; MARTENS (244).—Congo: *Stenogyra badia*, n. sp.; MARTENS, Conch. Mittheil. iii, 1889.—Dahomey: *Perideris lechatelieri*, n. sp.; DAUTZENBERG (108).—Damaraland: *Pupa ovampoensis*, *Stenogyra chapmani*, *Cionella ovampoensis*, n. spp., from Ovampo-Land; MELVILL & PONSONBY (251).—Gaboon: *Achatina dimidiata*, n. sp.; MARTENS, Conch. Mittheil. iii, 1889.—Senegambia: *Ennea kendigiana*, n. sp.; ROLLE (320).—St. Helena: land shells, with 11 new species; SMITH (364).

### 9. South African Region.

*Ennea*, 7 new species, *Erope*, 2 new species, *Vitrina*, 2 new species, *Macrocyclus*, 2 new species, *Helix farquhari*, n. sp., *H. (Pella)*, 11 new species, *H. (Trochozonites) dioryæ*, n. sp., *Planorbis segmentina*, n. sp.; MELVILL & PONSONBY (250–252).—*Apera burnupi*, n. sp.; SMITH (368).—*Ennea consobrina*, n. sp.; ANCEY (6).

### 10. Malagasy Region.

Madagascar: *Acroptychia notabilis*, n. sp.; SMITH (373): Nossi-Bé Is., 3 new species; BÆTTGER (31).—Mauritius: notes on shells from the; BAKER (11).

## c. PALÆOTROPICAL ORIENTAL ZONE.

### 12. Indian Region.

Specimens from Karachi; ADAMS (1).—Ceylon: *Vaginula sarasinorum* from Candy; SIMROTH (356): *Unio corbeti*, n. sp., from Lake Kaudy; DESCHAMPS (112).

### 13. Indo-Chinese Region.

Catalogue with geographical distribution of Indo-Chinese species; FISCHER (128): 5 new species, land *Mollusca*; MORLET (264).—Assam:

*Helix fultoni*, n. sp., from the Khasi Hills (?) ; GODWIN-AUSTEN (150) : *Diplommatina*, 26 new species from the Garo, Naga and Manipur Hills ; GODWIN-AUSTEN (149).—Cambodia : *Ampullaria brohardi*, n. sp. ; GRANGER (154).—Laos and Tonkin : 10 new species ; MORLET (263 & 264).—Singapore : *Vaginula carusi*, n. sp. ; SIMROTH (356).

#### 14. Indo-Malay Region.

List of Indo-Malay genera which extend to the Philippines ; COOKE (83).—Borneo : *Unio*, 6 new species, *Pseudodon*, 2 new species ; DROUET & CHAPER (115A).—Java : *Vaginula*, 5 new species ; SIMROTH (356).—Sœmba, Timor, &c. : Non-marine *Mollusca*, 6 new species ; SCHEPMAN (333).—Sumatra : *Nanina dohertyi*, n. sp. ; ALDRICH (3) : *Vaginula sumatrensis* and *weberi*, n. spp. ; SIMROTH (356).—Timor Laut : list of 20 species including 15 new ; MOELLENDORFF (258).

#### 15. Philippine Region.

Philippines : geographical distribution of the land forms ; COOKE (83) : *Vaginula chavesin*, n. sp., from Mindanao ; SIMROTH (356) : *Unio serradelli*, n. sp. ; DROUET (115).

#### d. AUSTRALIAN ZONE.

#### 16. Austro-Malay Region.

Celebes : *Vaginula graffi*, n. sp. ; SIMROTH (356).—Saleijer Is. : *Vaginula vivipara*, n. sp. ; SIMROTH (356).—Moluccas : 9 species from Halmahera (3 new species *Helix*, 2 new species *Leptopoma*) ; STRUBELL (389) : *Vaginula bocazei*, n. sp. ; SIMROTH (356) : *Acochlidium amboinense* and *paradonum*, nom. nud. for two freshwater species from Amboina ; STRUBELL, SB. niederrhein. Ges. xlix, p. 62.—New Guinea : list of a few species collected by Sir W. MacGregor on the Fly River ; HEDLEY (172) : Jaws, radulæ, and genitalia of some British New Guinea land *Mollusca*, HEDLEY (174) ; ? *Helix hedleyi*, n. sp., SMITH (370).—Solomon Is. : *Helix*, 2 new species, *Bulim[ul]us hobsoni*, n. sp., *Hedleya macleayi*, n. g. & sp. ; COX (90) : *Helix aggiei*, n. sp. ; HEIMBURG (180) : *Celialis exigua*, Ad. & Angus, erroneously described as from these Is., is an Australian form and a syn. for *Perrieria australis*, Forbes sp. ; HEDLEY (176).

#### 17. Australian Region.

Remarks on the slugs ; HEDLEY (178), COCKERELL (68) : *Helix everardensis*, *elderi*, n. spp., Elder River, Central Australia ; BEDNALL (14).—Queensland : notes on a collection of shells, with 3 new species ; HEDLEY & MUSSON (179).—Tasmania : observations on freshwater shells ; JOHNSTON (201) : variability of the Tasmanian *Unio* ; *id.* (202).

18. *Austro-Polynesian Region.*

New Hebrides : *Diplomorpha coxi*, n. sp.; HARTMAN (169).

19. *Polynesian Region.*

Sandwich Is. : revision of the genera *Pupa* (with 3 new species), *Cæcilianella* (1 new species), and *Helicter* (2 new species) ; ANCEY (8A).

20. *Neozelanian Region.*

New Zealand : lists of *Mollusca* ; SUTER (390) : list of introduced species ; *id.* (391) : list of doubtful species and forms erroneously recorded ; *id.* (391A) : miscellaneous notes ; *id.* (392) : dentition of some forms with *Amphidoxa olivacea* and *Phriagnathus transitans*, n. spp. ; *id.* (393) : notes on land *Mollusca* ; SUTER (394) : notes on New Zealand *Helices* ; PILSBRY (299, 410) : notes on *Pityls*, occurrence of *Ancylus*, on the *Limacidae* and *Arionidae* ; SUTER (395) : *Ptychodon magdalenæ*, n. sp., 1891 ; ANCEY (5).

## e. NEANTARCTIC ZONE.

21. *Patagonian Region.*

Paraguay : *Vaginula*, 3 new species ; SIMROTH (356).

22. *Chilian Region.*

Chili : *Vaginula chilensis*, n. sp. ; SIMROTH (356).

## f. NEOTROPICAL ZONE.

23. *Peruvian Region.*

Galapagos Is. : Non-marine *Mollusca*, with *Bulimulus*, 1 new sect. and 14 new species, *Pupa*, 2 new species, *Succinea wolffi* and *Helicina wolffi*, n. spp. ; REIBISCH, P. (313) : *Zonites baueri*, *Leptinaria chathamensis*, *Helicina nesiotica* ; DALL (104) : *Bulimus habeli*, *Onchidium lesliei*, n. spp. ; STEARNS (382).

24. *Columbian Region.*

United States of Columbia, 7 new species ; SOWERBY (379).—New Granada : *Helix sieversi*, n. sp. ; MARTENS, Conch. Mittheil. iii (1889).

25. *Brazilian Region.*

Bolivia : *Happia dalliana*, *Guppya anguina*, *Cyclophorus orbignyi*, *Odontostomus lemoinei*, n. spp., and *Helicina*, 3 new species ; ANCEY (7) :

*Nenia orbignyi*, n. sp.; ANCEY (6): *Cyane orbignyi*, *Nenia orbignyi*, *Odontostomus lemoinei*, n. spp.; ANCEY (8).—Brazil: *Systrophia alcidiana*, *Bulimulus germaini*, *Helicina leucozonalis*, n. spp.; ANCEY (7).

## 26. Mexican Region.

*Melaniidæ* and *Proserpinidæ*; FISCHER & CROSSE (133).—Central America: *Omphalina* 2, *Hyalinia* 3, *Guppya* 4, *Pseudohyalina cidariscus*, *Helix altispira*, and *Polygyra* 2 new species; MARTENS (245).—California: Catalogue of non-marine species of Lower California; COOPER (84).—Guatemala: *Neritina sargi* and *Unio usuniasintæ*, n. spp.; CROSSE & FISCHER (98).—Honduras: *Aperostoma goldfussi*, n. sp.; BETTGER (34).—Mexico: *Bulimulus chaperi* and *Anodonta chapalensis*, n. spp.; CROSSE & FISCHER (98): *Patula intonsa*, n. sp., from Orizaba; PILSBRY, in TRYON'S Manual (410): *Eucalodium compactum* and *Potamanax rovirosai*, n. subg. & n. sp., from Tabasco; PILSBRY (293A): *Pachychilus rovirosai*, possible new species; PILSBRY (291).

## 27. Caribbean Region.

West Indies: anatomy of *Caracolus*, 2 species, and *Hemitrochus salvatoris*; PILSBRY (289).—Dominica Is.: notes on a collection of land *Mollusca*, including *Vaginula punctatissima*, Semp., new to loc.; PILSBRY (295).—Haiti: list of *Mollusca*; TIPPENHAUER (406).—Jamaica: *Helix vendryesi*, *Veronicella jamaicensis*, *virgata*, *dissimilis*, alleged new species; COCKERELL (67).—Portorico: catalogue with 130 species; CROSSE (93).

## g. NEARCTIC ZONE.

## 28. American Region.

N. American forms of *Vallonia*; STERKI (384): *Pupidæ* of N. America; STERKI (385): North American species of *Succinea*; COCKERELL (73): notes on *Unio luteolus* and *radiatus*; DEAN (110).—Alabama: list of land *Mollusca*; SARGENT (328): *Helix sargenti*, n. sp.; JOHNSON & PILSBRY (200).—Arkansas: *Zonites brittsii*, n. sp.; PILSBRY (297).—Florida: list of *Mollusca* (*Pleurotoma simpsoni*, *Tralia minuscula*, and *Pandora bushiana*, n. spp. by DALL) SIMPSON (349): *Lyogyrrus dalli*, n. sp.; PILSBRY (300): Florida *Unionidæ* with *Unio subluridus*, n. sp.; SIMPSON (346).—Illinois: *Unionidæ* of Spoon River; STRODE (388).—Iowa: *Ancylus obliquus*, n. sp.; SHIMEK (342).—Louisiana: *Mollusca* of Dorcheat Bayou and Lake Bisteneau; VAUGHAN (416).—Michigan: shell-bearing *Mollusca*; WALKER (423).—Missouri: occurrence of *Mesodon andrewsi*; SAMPSON (326).—New York: *Mollusca* of Monroe County; WALTON (424): preliminary list of the *Unionidæ*; MARSHALL (238).—Ohio: catalogue of non-marine *Testacea* of Portage County; DENN (111).—Texas: *Hyalinia leviuscula*, n. sp.; STERKI (386): *Hydrobia texana*, n. sp. (1887); PILSBRY (296).

29. *Californian Region.*

*Pupidæ* of North America ; STERKI (385) : North American species of *Succinea* ; COCKERELL (73).—California : occurrence of *Limax agrestis*, Linn. ; RAYMOND, Naut. v, p. 101.—Arizona : occurrence of *Patula strigosa*, Gould ; STEARNS, Naut. vi, p. 1.

30. *Canadian Region.*

North American forms of *Vallonia* ; STERKI (384) : North American species of *Succinea* ; COCKERELL (73).—New Brunswick : addenda to the *Mollusca* ; GANONG (145).

## MARINE MOLLUSCA.

1. *Arctic Province.*

*Mollusca* from East Spitzbergen, 71 species, including *Pleuroleura walteri*, n. sp. ; KRAUSE (216).

2. *Boreal Province.*

[None.]

3. *Celtic Province.*

British Isles : *Mollusca* of the Liverpool Marine Biological Committee District ; ARCHER (9) : *Nudibranchia* at Puffin Is. ; HERDMAN, Tr. Liverp. Biol. Soc. v (1891), p. 31 : Observations on *Lomanotus genei*, Verany, and *Hancockia eudactylota*, Gosse ; GAMBLE (144) : occurrence of *Pleurophyllidia loveni* in Britain ; M'INTOSH (236), HERDMAN (183), GRIESBACH, Conchologist, ii, p. 72 : Rare *Mollusca* on the Devon Coast ; GARSTANG (146) : marine invertebrate fauna of Plymouth ; GARSTANG, J. Mar. Biol. Ass. ii, pp. 335–337 : *Mollusca* of N. Wales Coast ; TOMLIN (407) : *Mollusca* of the Moray Firth ; SCOTT (340) : list of shells on Ardeer and Irvine beaches, Ayrshire ; SMITH, J. (376) : *Mollusca* from the Coasts of Donegal and Dublin ; HART (168) : list of species from Killala Bay, Ireland ; WARREN (425).

France : *Mollusca* of the Department of the Somme ; BIZET (24).

Germany : *Syndosmya schneideri*, n. sp., from Borkum Is. ; BËTTGER in SCHNEIDER (337).

4. *Lusitanian Province.*

Distribution of *Ovula carnea*, Poiret ; FISCHER, P. (129), WATSON (427).—Atlantic : *Cratena fructuosa*, n. sp., and *Pleurobranchillus morosus*, n. g. and sp. ; BERGH (18).—Azores : *Mollusca* obtained by the Prince of Monaco ; DAUTZENBERG (107) 1889 ; many new species : *Euplocamus*

*atlanticus*, n. sp.; BERGH (18).—Maderia: *Spondylus powelli*, n. sp.; SMITH (370).—West Coast of France: *Mitra aquitanica*, found on the West Coast of France; LOCARD (226): *Clathurella bourguignati, servaini*, n. spp., 1891; LOCARD (220): *Neptunea nicolloni*, n. sp.; LOCARD (220A): *Anomiidae* with *Anomia boletiformis*, n. sp.; LOCARD (221): *Chama nicolloni*, n. sp.; DAUTZENBURG (109).—Spain: *Cephalopoda* of the Spanish Coasts; GIRARD (148).—Mediterranean: *Vermetidae*, with 3 new species of *Vermetus*; MONTEROSATO (262).—South Coast of France: Molluscan fauna of Bandol (near Toulon); CAZIOT (62): *Anomiidae*; LOCARD (221).—List of *Mollusca* of the neighbourhood of Zara; DANILO & SANDRI (106).—Kalymos Is.: *Polia reticulata*, *azona*, *Alvania rufopunctata*, *Gibbula eliadum*, and *valentini*, n. spp.; BËTTGER (35).—Malta: Disappearance of *Spondylus gæderopus*, &c.; CARUANA-GATTO (59).

### 5. Aralo-Caspian Province.

[None.]

### 6. West African Province.

Mogador: *Lepidopleurus granoliratus*, n. sp.; TRYON'S Manual (409).—*Octopus sponsalis* and *ergasticus*, n. spp., W. coast, off the Sahara littoral; FISCHER, P. & H. (134).—Senegambia: *Pisania scholvieni* and *Turritella maltzani*, n. spp.; ROLLE (320).

### 7. South African Province.

Catalogue, with 1 new genus and 43 new species; SOWERBY (378).—St. Helena: additions to the fauna, with *Jeffreysia atlantica* and *Tellinomya producta*, n. spp.; SMITH (367).

### 8. Indo-Pacific Province.

Mauritius: notes on shells; BAKER (11): *Pecten crouchi*, n. sp.; SMITH (365).—Red Sea: remarks on the fauna; JOUSSEAUME (204).—Persian Gulf: pearl *Mollusca*; GALLETLY (143).—India: *Nucula fultoni*, n. sp., Bay of Bengal; SMITH (371).—Indo-China: Catalogue with geographical distribution of Indo-Chinese species; FISCHER (128).—Gulf of Siam, W. of Cambodia, 27 species; CROSSE & FISCHER (95).—Hongkong: *Ischnochiton asperior* and *bisculptus*, n. spp.; TRYON'S Manual (409): *Pyrula filosa*, n. sp.; SOWERBY (380).—Liu-Kiu Is.: list of 167 species, *Monilea fritzei* new; BËTTGER (33).—Philippines Is.: *Ischnochiton solidior*, n. sp.; TRYON'S Manual (409).—Australia: *Cephalopoda* and *Pteropoda*; BRAZIER (44).

### 9. Australo-Zelandic Province.

Australia: *Ischnochiton cariosus* and *haddoni*, n. spp.; TRYON'S Manual (409).—Descriptions of 1 new genus and 11 new species of marine

*Mollusca* from South Australia; TATE, (399) 3rd Suppl. to list of Australian *Pelecypoda*; *id.* (399A).—*Glaucus atlanticus*, Forster, washed ashore, New S. Wales; HEDLEY (173).—*Cephalopoda* and *Pteropoda* of Australia and Tasmania; BRAZIER (44).—Tasmania: *Callochiton lobatus*, n. sp.; TRYON'S Manual (409): *Columbella unisulcata*, n. sp.; KOBELT, in MARTINI & CHEMNITZ (246).—New Zealand: *Spongiochiton productus*, n. sp.; TRYON'S Manual (409).

#### 10. Japonic Province.

Japan: *Volutharpa salmiana*, n. sp.; ROLLE (320): *Thylacodes medusæ*, n. sp.; MACGEORGE (235): Japanese *Patellidæ*; TAYLOR (401): *Lepidopleurus curvatus* and (?) *Ischnochiton asperior*, n. sp.; TRYON'S Manual (409).—Bonin Is.: *Ischnochiton multidentatus*, n. sp.; TRYON'S Manual (409).

#### 11. Aleutian Province.

[None.]

#### 12. Californian Province.

*Fisurellidæ* of the United States; PILSBRY & JOHNSON (303).—California: *Loligo stearnsii*, n. sp. [?]; HEMPHILL (182): *Margarita (Turricula) bairdii*, n. sp.; DALL (101) 1889: *Uvanilla regina*, n. sp.; STEARNS (382): *Chaetopleura gemmea*, n. sp., and *Ischnochiton*, 9 new species; TRYON'S Manual (409).—Lower California: *Mitra fultoni*, n. sp.; SMITH (365): *Lepidopleurus rugatus*, n. sp., and *Ischnochiton*, 2 new species; TRYON'S Manual (409).—Monterey Bay: *Scaphella arnheimi*, n. sp.; RIVERS (317).—San Pedro Bay: catalogue of shells from (*Vitri-nella williamsoni* and *Amphissa bicolor*, n. spp., DALL); WILLIAMSON (435).

#### 13. Panamic Province.

Ecuador: *Littorina atyphus*, n. sp., MANTA; STEARNS (382).—Galapagos Is.: *Nitidella incerta* and *Littorina galapagensis*, n. spp.; STEARNS (382).

#### 14. Peruvian Province.

[None.]

#### 15. Antarctic Province.

[None.]

#### 16. Patagonian Province.

Gorriti Is.: *Chaetopleura armillata*, n. sp.; TRYON'S Manual (409).

17. *Caribbean Province.*

Descriptions of species dredged in the Gulf of Mexico, including many new; DALL (101) 1889: *Fissurellidae* of the United States; PILSBRY & JOHNSON (303): List of *Mollusca* (with *Pleurotoma simpsoni*, *Tralia minuscula*, *Natica fordiana*, and *Pandora bushiana*, n. spp., by DALL); SIMPSON (349).—Florida Keys: *Ischnochiton floridanus*, n. sp.; TRYON'S Manual (409).—Haiti Is.: list of *Mollusca*; TIPPENHAUER (406).

18. *Transatlantic Province.*

Descriptions of species dredged, including many new; DALL (101) 1889: *Fissurellidae* of the United States; PILSBRY & JOHNSON (303).—New Jersey: Coast shells, with figs.; FORD (136): *Chrysodomus stonei*, n. sp.; PILSBRY (293): *Crepidula*, STONE (387).

## GEOLOGICAL.

Summary of Palæontological work done during 1890: *Cephalopoda*, by E. HAUG, *Gastropoda*, by M. COSSMANN; Ann. Geol. Univ. pp. 957-1024.

Palæontology of New Guinea; ETHERIDGE, in THOMPSON'S "British New Guinea," London, 1892, 8vo, pp. 208-215.

Fossil types in the Bath Museum; P. Bath N. H. Soc. vii, pp. 270-279.

## 1. QUATERNARY.

Pleistocene non-marine *Mollusca* found in the Admiralty section; ABBOTT, P. Geol. Ass. xii, p. 356.—List of *Mollusca* from the Pleistocene deposits at West Wittering, Sussex; REID, Q. J. Geol. Soc. xlviii, p. 357.—Notes on marine shells from the Post-pliocene deposits of Manchester; ROEDER, Tr. Manch. Geol. Soc. xxi, pp. 607-619.—*Mollusca* from raised beach at Fillyside, between Leith and Portobello, N.B.; SCOTT (339).—Malacological fauna of recent deposits at Brussels; RAEYMAEKERS, Bull. Soc. Mal. Belg. 1891 [1893], pp. vii-xi.—Post-glacial *Mollusca*, with *Rissoa purva*, at Åland, Sweden; MADSEN, Geol. Fören. Stockholm Förhandl. xiv, pp. 585-590.—List of non-marine *Mollusca* from the alluvial marls of Cotta, near Dresden; REIBISCH, T. (314).—Silurian *Cephalopoda* from the alluvial beds of Mecklenburg; RUEDIGER (324).—Pliocene and quaternary Molluscan fauna of the environs of Oran; PALLARY, CR. Ass. Fr. Sci. 1891, ii, pp. 383-387, figs.—Recent fossils of the Harbour and Back Bay, Boston; UPHAM (415).—Fossils of the Loess of E. Nebraska and W. Iowa; SHIMEK, Bull. Lab. Iowa, i, pp. 200-214, ii, pp. 89-93.—Post-tertiary shells collected in a dry salt lake near Eddy, Mexico; STERKI, Rep. Geol. Surv. Texas, iii, pp. 263-265.—Post-tertiary *Mollusca* of Queensland; JACK & ETHERIDGE (193) pp. 640-646.

## 2. TERTIARY.

Belgium: *Aspidopholas stainieri*, n. sp., from the Tertiary of Antwerp ; VINCENT (419).—France : marine *Mollusca* of the Basin of the Rhone ; FONTANNES, Études strat. and paléont. periode tert. dans le Bassin du Rhone, x, Paris, 1892, 8vo.—Germany : older Tertiary fauna of the neighbourhood of Berlin, with new species ; KOENEN, JB. k. preuss. geol. Landesanst. xi, Abh. pp. 257–276, figg.—Austro-Hungary : *Gastropoda* from Häring, Tirol, with 15 new species ; DREGER (114) : fossil fauna of Markuševac in Croatia, 49 new species, *Baglivia*, n. g. ; BRUSINA (49) : Tertiary Rudistes, *Ceratoconcha costata*, n. g. & sp., 1889, from Agram ; GORJANOVIĆ-KRAMBERGER (153).—Italy : Upper Tertiary *Pectunculus* ; GREGORIO (155) : Non-marine *Mollusca* of the Province of Modena ; PICAGLIA (286).—Tertiary species (many said to be new) of *Eulimidae* and *Pyramidellidae* from Piedmont and Liguria ; SACCO (325).—Sardinia : *Spirulirostrina lovisatoi*, n. g. & sp. ; CANAVARI (56).—Molluscan fauna of Florida, pt. ii, completing the *Gastropoda*, *Pteropoda*, *Polyplacophora*, and *Scaphopoda*, with very many new species, and *Glyptostyla panamensis*, n. g. & sp., from the Tertiary beds of Panama ; DALL (102).—New Guinea : Tertiary *Mollusca* ; JACK & ETHERIDGE (193) pp. 692–694.

Pliocene : Lists of pliocene *Mollusca* from the environs of Montpellier ; VIGUIER, C.R. Ass. Fr. Sci. 1891, ii, pp. 405–416, 1 pl.—Italy : Pliocene *Lamellibranchiata* from upper and central Italy ; PANTANELLI (276).—Pliocene *Mollusca* of Cerreto-Guidi and confines, with *Conus caroli*, *Arca ida*, and *Lepton stefanii*, n. spp. ; FUCINI, Boll. Soc. geol. Ital. x, pp. 59–86, 1 pl.—Pliocene of Bologna, with *Pholadomya elegantula*, n. sp. ; FORESTI (138).—New Zealand : Pliocene *Mollusca* ; HUTTON, Nature, xlii, p. 474 [Abstr.].

Miocene : Germany : *Pelecypoda* from the Miocene of Dingden, with many new species ; LEHMANN, Verh. Ver. Rheinl. xlix, pp. 198–241, 1 pl.—Austro-Hungary : Sarmatic-miocene shells of Oststeiermark ; HILBER, MT. Ver. Steierm. xxviii, pp. 235–248, 1 pl.—Pontic fauna of Southern Hungary, with *Cardium semseyi*, n. sp. ; HALAVÁTS, MT. Ung. geol. Anst. x, No. 2. — Prepontic fauna of Agram ; GORJANOVIĆ-KRAMBERGER, Glasnik Naravosl. Društ. v, 1890, pp. 154–164, 1 pl.—Miocene non-marine *Mollusca* from Samos ; STEFANI in 'Samos.' By C. de Stefani, C. J. Forsyth Major and W. Barbey. Lausanne : 1891 (1892), 4to, pp. 76–81, 1 pl.

Oligocene : France : revision of the Oligocene fauna of Étampes (contd.) with *Odontostomia lamberti* and *Truncatella bezanconi*, n. spp. ; COSSMANN (87) : Fauna of the Oligocene of Narbonne ; VIGUIER, Bull. Soc. Béziers, xiv, p. 72.—Germany : Upper Oligocene fossils of the Malliss Brickearths ; GEINITZ, Arch. Ver. Mecklemb. xlii, pp. 65–67, 71 & 72 : *Natica geinitzi*, *Calliostoma jetschini*, *Yoldia beyrichi*, from the Rupelian of Germany ; BETTGER (30) : Lower Oligocene *Mollusca* of N. Germany, with many new species ; KOENEN (211).—Albania : Oligocene *Mollusca* ; DREYER, JB. geol. Reichsanst. xlii, pp. 339 & 340.

Eocene: Belgium: Eocene *Pholadidae*; VINCENT (420).—France: Eocene *Mollusca* from the environs of Paris, with some new genera and sections and many new species; COSSMANN (85): lists of Eocene fossils collected near Reims on different excursions; Bull. Soc. Reims, i, pp. 62–64, 84 & 85, 91, 94–97.—Germany: new locality for non-marine *Mollusca* from the Vincentinian Eocene; OPPENHEIM & BEYRICH, Z. geol. Ges. xliv, pp. 500–503.—Italy: Lower Tertiary *Mollusca* of the Ligurian littoral; GREGORIO (157).

### 3. SECONDARY.

Secondary fossils from the Balkans, with many new species; VANKOV, Rad. jugoslav. Akad. cxi, pp. 78–102: Secondary fossils from St. Philippe-de-Benguéla, with *Desmoceras cuvervillei*, *Hamites tropicalis* and *Natica gabonensis*, n. spp.; STANISLAS MEUNIER, Le Nat. 1892, pp. 113 & 114, figg.: new genera and new species of *Mollusca* from the Secondary rocks of the Argentine Cordilleras; BEHRENDSEN (15): Secondary fossils from Queensland with *Pseudavicula* and *Maccoyella*, new genera and many new species; JACK & ETHERIDGE (193), pp. 319 & 320, 388 & 389, 445–503, 561–574: *Unio eyrensis*, Tate, and sp. ? from the Mesozoic of South Australia; ETHERIDGE in BROWN, Reports on the Coalbearing area near Leigh's Creek [Govt. Rept.] 1891, pp. 11 & 12; Upper Rognacian of Les Baux, with 3 new species of land shells; NICOLAS (270).

Cretaceous: *Mollusca* from the Cretaceous of Schleswig-Holstein with *Dimyodon boehmi*, n. sp.; STOLLEY, MT. min. Inst. Kiel, i, pp. 229–244: fossils of the Cretaceous of the Venetian Alps with new *Caprinidae*; BOEHM, Ber. Ges. Freiburg, vi, pp. 139–148, figg.: Cretaceous *Mollusca* from the S. E. of Spain, with new species of *Mortonicerias*, &c.; NICKLÈS, Annales Hébert, i, pp. 187–202, figg.: Cretaceous forms from Albania; DREGER, JB. geol. Reichsanst. xlii, pp. 337–339: list of Cretaceous fossils from the Podol'ski Govt.; RADKEVICH, Zapiski. Kiev. xi (1891), pp. 82 & 83: *Cypræa* from the Fox Hills Group; CAMPBELL, Naut. vi, p. 50: on the occurrence of *Actinocamax quadratus* and *Belemnitella mucronata*; STROMBECK, Z. geol. Ges. xliii, pp. 919–922.

Upper Cretaceous: Upper Senonian fossils of the Eifel; VOGEL, Verh. Ver. Rheinl. xlix, pp. 18–87, figg.: palæontology of the Upper Senonian of Irnich, Eifel, with many new species; VOGEL, Verh. Ver. Rheinl. xlix, pp. 32–106, 1 pl.: Upper Cretaceous *Mollusca* of the Venetian Alps, with many new species and *Cornucaprina* and *Orthoptychus* n. gg.; FUTTERER (139): 3 new species of *Belemnites* (*Actinocamax*) from the Senonian; JANET (194).

Lower Cretaceous: *Ammonites* from S. W. France, with 3 new species; KILIAN (208): Neocomian of Dîmbovicioara, Roumania, with descriptions of Molluscan species, none new; UHLIG, JB. geol. Reichsanst. xli, pp. 216–234: Valanginian *Hoplites* of the group *H. neocomiensis*; LORY (233).

Tithonian : List of fossils from Aizy-sur-Noyarcy (Isère) ; GEVREY, Bull. Soc. Stat. Isère (4) i, pp. 49-55.

Jurassic : Catalogue of British Jurassic *Gastropoda* ; HUDLESTON & WILSON (192) : Jurassic *Mollusca* of Yorkshire, list ; FOX-STRANGWAYS, Mem. Geol. Surv. U. K., Jurassic Rocks, ii, pp. 45-117, 150-185, 204-245, 249, & 250 : Speeton Clay Ammonites, with several new species ; PAVLOW (277).—Jurassic *Mollusca* of Boulogne, with new species ; RIGAUX (316) : Upper Jurassic fossils from Grenoble ; PAQUIER, Bull. Soc. Stat. Isère (4) i, pp. 33-44 : *Harpoceras mathayense*, n. sp., Upper Callovian of Doubs ; KILIAN (208) : Rengerithone [Oxfordian] fauna of Kandern, Baden ; LENT, MT. Badischen geol. Landesanst, ii, pp. 623-639 : Upper Jurassic *Ammonites* of Poland, *Opelia stolzmanni*, *Cardioceras suessi*, *Persphinctes*, 5 new species, *Proplanulites teisseyrei*, n. spp. ; SIEMIRADZKI (344) : *Mollusca* from the Middle Jurassic of Castel Tesino in the S. E. Tirol ; BOESE & FINKELSTEIN, Z. geol. Ges. xlv, pp. 280-284 : Jurassic *Mollusca*, with many new species from the Is. of Timor and Rotti ; ROTHPLETZ (323).

Inferior Oolite : *Gastropoda* of the British Isles, several new species ; HUDLESTON (191) : *Ammonites* of the British Islands, with alleged new species ; BUCKMAN (54).

Northampton Sands : occurrence of *Ammonites jurensis* ; BUCKMAN (52).

Liassic : List of fossils from the Lias of Northamptonshire ; J. Northampt. Soc. 1892, pp. 45-49 : *Cephalopoda* of the Upper Lias of Sainte-Colombe-lès-Avallon (Yonne) ; MILLOT (255) : *Mollusca* from the Liassic Ironstone near Helmstedt, with new species ; WOLLEMAN, Verh. Ver. Rheinl. xlix, pp. 107-124 : Liassic fossils from Sette, with *Gervilia ombonii* and *Pecten taramelli*, n. spp. ; NEGRI, Boll. Soc. geol. Ital. x, pp. 309-331, 1 pl.

Trias : Triassic *Mollusca* of the Duchy of Sachsen-Altenburg ; GEINITZ, MT. Osterlande, v, pp. 184-189 : *Gastropoda* of the St. Cassian beds, Pt. II, with 2 new genera and 32 new species ; KITTL (209) : Trias of the Northern Alps, notes on *Conchodus*, with *C. schwageri*, n. sp. ; TAUSCH (400) : *Mollusca* from the Alpine Trias, with new genera and species ; KOKEN (212) & WOEHRMANN & KOKEN (438) : Preliminary remarks on the Cephalopod fauna of the Himalayan Trias ; MOJSISOVICS, SB. Ac. Wien, ci, Abth. i, pp. 372-378 ; *Chemnitzia manzavini* and *Shizodus negrii*, n. spp., Trias of Balia, Asia Minor ; BITTNER (22) : Timor and Rotti, Triassic *Mollusca*, with many new species ; ROTHPLETZ (323).

Muschelkalk : Fossils of the Muschelkalk, with *Beneckeia cognata*, n. sp. ; WAGNER, Z. geol. Ges. xliii, p. 898, fig. : *Balatonites sondershusanus*, n. sp., from the Muschelkalk near Sondershausen ; PICARD (288).

#### 4. PRIMARY.

Palæozoic *Hyolithidae* of Bohemia revised, with new genera and new species ; NOVÁK (271).—Check-list of Palæozoic *Mollusca* from Wisconsin, Minnesota, Iowa, Dakota, and Nebraska ; BIERBAUER (20).—

Palæozoic species of the *Platyceras* group; KEYES (206).—11 new species of *Pelecypoda*, 6 new species of *Platyceras*, from the Clinton, Lower Helderberg, Chemung, and Waverly groups of Pennsylvania; SIMPSON (350).—Middle Devonian and Permo-Carboniferous *Mollusca* from Queensland, with *Deltopecten* and *Merismopteria*, n. gg., and many new species; JACK & ETHERIDGE, (193) pp. 69 & 264-296

Permian: Permian *Mollusca* of the Duchy of Sachsen-Altenburg; GEINITZ, MT. Oesterlande, v, pp. 168 & 174-177: *Anthracosie* from the Permian of Russia, *Palæomutela* and *Oligodon*, n. gg., with many species; AMALIZKY (4): *Mollusca*, with new species from the Permian of the Is. of Timor and Rotti; ROTHPLETZ (323): Fossils from Lower Magnesian Limestone of Iowa, with new species of *Straparollus*, *Raphistoma*, and *Cyrtoceras*; CALVIN, Bull. Lab. Iowa, ii, pp. 189-193: Lower Magnesian Limestone fossils from Iowa, with new species of *Straparollus*, *Raphistoma*, and *Cyrtoceras*; CALVIN, Am. Geol. x, pp. 144-148.

Carboniferous: Carboniferous *Murchisonia*, 6 new species; DONALD (113): Carboniferous *Pelecypoda*—*Ctenodonta*, *Nucula*, and *Allorisma*; GOODCHILD (152, 152A).

Devonian: Devonian fauna of S. England, with new species; WHIDBORNE (431): Devonian *Mollusca* of the Duchy of Sachsen-Altenburg; GEINITZ, MT. Osterlande, v, pp. 168 & 174-177: *Ammonites* of the *Sporadoceras muensteri* Zone (Upper Devonian) of Orenburg, with *Clymenia*, 3 new species; LOEWINSON-LESSING (231): *Amnigenia rhenana*, n. sp., from the Middle Devonian of Germany; BEUSHAUSEN (19): Devonian of the Eastern Alps, with *Platyceras conoideum*, n. sp.; FRECH, Z. geol. Ges. xliii, p. 678: Devonian species from Manitoba, with many new, and *Astralites*, n. g. (*incerta sedis*); WHITEAVES, Contrib. Canadian Palæont. i, pp. 292-346, figg.: New Devonian fossils of Iowa—*Schizodus symmetricus*, *Holopea grandis*, *Straparollus lativalvis*, *bicarinatus*, *tricarinatus*, *Bucania perornata*, *Cyclostoma*, n. spp.; CALVIN, Bull. Lab. Iowa, i, pp. 176-181, figg.: *Clymenia neapolitana*, n. sp., Upper Devonian (Naples Beds) of Western New York; CLARKE (64): Devonian of Bolivia, with 6 new species; ULRICH (412).

Silurian: *Trematonotus* from the Wenlock Limestone, near Dudley; NEWTON (268): Silurian *Cephalopoda* from the alluvial beds of Mecklenburg, with 3 new species of *Endoceras*; RUEDIGER (324): Swedish Silurian, *Endoceras hircus* and *schmidtii*, n. spp.; HOLM (189): Swedish Silurian species of *Lituites*, with 3 new species, and *Cyclolituities lynceus*, n. sp.; HOLM (188): *Orthoceratidæ* of the Trenton Limestone of the Winnipeg Basin; WHITEAVES (432): New Lower Silurian *Pelecypoda* of the U. S., with *Cleionychia*, n. g., and 1 new species, *Cypricardites*, 3 new species, *Technophorus*, 3 new species, *Tellinomya longa*, n. sp.; ULRICH (414): New Lower Silurian *Pelecypoda*, with *Plethocardia*, n. g., mostly from Minnesota; ULRICH (413): *Raphistoma brownii*, n. sp., and *Orthoceras* sp.?, from the Silurian of South Australia; ETHERIDGE in BROWN, Reports on the Coalbearing area near Leigh's Creek [Govt. Rep.], 1891, pp. 9 & 10.

Cambrian : Swedish fossils from the Cambrian Sandstone, with *Dentalium ? cambricum* and *Hyolithus insularis*, n. spp.; MOBERG, Geol. Fören. Stockholm Förhandl. xiv, p. 117, figg. : Cambrian fossils of South Australia, with 3 new species of *Mollusca* ; TATE, Tr. R. Soc. S. Austr. xv, pp. 183-185.

#### IV.—SYSTEMATIC.

Classification of the *Mollusca* ; PELSENEER, Bull. Sci. Fr. Belg. xxiv, pp. 347-371, 1 fig.

Introduction to the study of the *Mollusca* ; COUPIN (88).—Comparative Anatomy of the *Mollusca* ; LANG (218).—New edition of BRONN (46) by H. SIMROTH, Lief 1 & 2, Historische Uebersicht.

On the asymmetry of univalve *Mollusca* ; FISCHER & BOUVIER, J. de Conch. 1892, pp. 117-207, pls. ; PELSENEER, t. c. pp. 229-233.—Coiling of univalves ; FISCHER & BOUVIER, t. c. pp. 234-245.—See also under *Gastropoda*.

#### I. CEPHALOPODA.

Résumé of the classification of *Cephalopoda*, with a note on the *Cephalopoda Dibranchiata* of the Upper Lias of Sainte-Colombe-lès-Ava'lon (Yonne) ; MILLOT, Bull. Soc. Autun, iv, pp. 37-57, figg.—Evolution and classification [chiefly of fossil forms] ; BLAKE, P. Geol. Ass. xii, pp. 275-295.—*Cephalopoda* of the Spanish Coast ; GIRARD, An. Soc. Esp. xxi, pp. 391-399.

Catalogue of the *Cephalopoda* of Australia and Tasmania ; BRAZIER (44). On the chromatophores of *Cephalopoda* ; PHISALIX, C.R. Soc. Biol. iv, p. 442 ; PALLECCHI, Atti Soc. Ligust. iii, pp. 204-214.—Colouration of the tegument ; JOUBIN, Arch. Z. expér. x, pp. 277-330, figg.

On the structure of the posterior salivary glands of the *Cephalopoda* ; RAWITZ, Arch. mikr. Anat. xxxix, pp. 596-611, 1 pl.

Development of the *Cephalopoda* ; KORSCHULT (214).—Differentiation of the germinal layers ; KORSCHULT, Verh. Deutsch. Zool. Ges. ii, pp. 87-92.

#### DIBRANCHIATA.

#### OCTOPODA.

*Argonauta* : a living specimen and its habits described, with fig. of position when swimming ; LACAZE-DUTHIERS, Arch. Z. expér. x, pp. 37-56.

*Octopus sponsalis*, p. 297, *ergasticus*, p. 298, W. Coast of Africa, off the Sahara littoral, P. & H. FISCHER, J. de Conch. 1892, figg.

## DECAPODA.

Table of chief characters of Oigopsid Cephalopods; GOODRICH, J. Mar. Biol. Ass. ii, pp. 318-321.

†*Actinocamax grossouvrei*, p. 716, *toucasi*, p. 719, *alfridi*, p. 720, from the Senonian, JANET, Bull. Soc. Géol. xix, figg., n. spp.

*Loligo stearnsii*, possible new species, California? HEMPHILL, Zoe, iii, pp. 50 & 51.

*Ommastrephes pteropus*, Stp., notes on; GOODRICH, J. Mar. Biol. Ass. ii, pp. 314-321, figg.

†*Spirulirostrina*, n. g. for *S. lovisatoi*, n. sp., Tertiary of Sardinia; CANAVARI, Bull. Soc. Mal. Ital. xvi, p. 65, fig.

## AMMONEA.

†*Amaltheus* (?) *attenuatus*, n. sp., Neocomian of the Argentine Cordilleras; BEHRENDSEN, Z. geol. Ges. xlv, p. 17, fig.

†*Ammonites jurensis*: note on occurrence in Northampton Sands; BUCKMAN, Geol. Mag. 1892, pp. 258-260.

†*Aspidoceras bodenbenderi*, n. sp., Tithonian of the Argentine Cordilleras; BEHRENDSEN, Z. geol. Ges. xlv, p. 13, fig.

†*Baculites compressus*, Say, development of shell in coiled stage; BROWN, P. Ac. Philad. 1892, p. 136.

†*Balatonites sondershusanus*, n. sp., Muschelkalk near Sondershausen; PICARD, Z. geol. Ges. xlv, p. 483, figg.

†*Cardioceras suessi*, n. sp., Upper Jurassic of Poland; SIEMIRADZKI, Z. geol. Ges. xlv, p. 455.

†*Clymenia* (*Cyrtoclymenia*) *neapolitana*, Upper Devonian of Western New York, CLARKE, Am. J. Sci. xliii, p. 57, fig.; †*C. barbaræ*, p. 20, *inostranzevi*, p. 21, *dubia*, p. 22, Upper Devonian of Orenburg, LOEWINSON-LESSING, Mém. Soc. Belg. Géol. vi, figg.: n. spp.

†*Harpoceras* (*Ludwigia*) *mathayense*, n. sp., Upper Callovian of Doubs; KILIAN, Bull. Soc. Stat. Isère (4) i, p. 204, figg.

†*Hoplites neocomiensis*: on the species of the group from the Valanginian Marls of Southern Dauphiné and Haute-Provence; LORY, Bull. Soc. Stat. Isère (4) i, pp. 229-255.

†*H. angulatiformis*, p. 16, *neumayri*, p. 17, n. spp., Neocomian of the Argentine Cordilleras; BEHRENDSEN, Z. geol. Ges. xlv, figg.

†*Lytoceras stephanense*, p. 2, *depereti*, p. 4, n. spp., Lower Cretaceous, S.W. of France; KILIAN, Arch. Mus. Lyon, v, No. 3, fig.

†*Olcostephanus* subdivided into the following groups: *Virgatites*, *Craspedites*, *Polyptychites*, *Holcodiscus*, *Astieria*, *Simbirskites*; PAVLOW, Bull. Soc. Mosc. 1891 (1892), p. 113.

- †*Oppelia bukowskii*, p. 450, *stolzmanni*, p. 452, n. spp., Upper Jurassic of Poland; SIEMIRADZKI, Z. geol. Ges. xlv.
- †*Perisphinctes*: list of species with many new forms from the Upper Jurassic of Poland; SIEMIRADZKI, Z. geol. Ges. xlv, pp. 455-478.
- †*Phylloceras goreti*, Lower Cretaceous of S. W. France, KILIAN, Arch. Mus. Lyon, v, No. 3, fig.; †*P. homophyllum*, Inferior Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 6, fig.: n. spp.
- †*Proplanulites teisseyreii*, n. sp., Upper Jurassic of Poland, SIEMIRADZKI, Z. geol. Ges. xlv, p. 480.
- †*Stephanoceras zigzag* series, Morphology; BUCKMANN, Q. J. Geol. Soc. xlviii, pp. 447-452, 2 pls. To certain of the forms the author gives the names *S. subprocerum*, *clausiprocerum*, *crassizigzag*, *pseudoprocerum*.

## TETRABRANCHIATA.

## NAUTILIDÆ.

- †*Cyclolituites lynceus*, Silurian of Sweden, HOLM, Geol. Fören. Stockholm Förhandl. xiii, p. 766, fig., n. sp.
- †*Endoceras angelini*, p. 27, *schlieffeni*, p. 30, *angustisiphonatum*, p. 37, Silurian species from the diluvial deposits of Mecklenburg, RÜDIGER, Arch. Ver. Mecklenb. xlv, figg.; †*E. hircus*, p. 127, *schmidtii*, p. 129, HOLM, Geol. Fören. Stockholm Förhandl. xiv, figg.; †*E. crassisiphonatum*, Trenton Limestone of the Winnipeg Basin; WHITEAVES, Tr. R. Soc. Canada, ix, 4, p. 79, figg.: n. spp.
- †*Gonioceras lambii*, n. sp., Trenton Limestone of the Winnipeg Basin, WHITEAVES, Tr. R. Soc. Canada, ix, No. 4, p. 86, fig.
- †*Lituities*: notes on the mouth of; HOLM, Geol. Fören. Stockholm Förhandl. xiii, pp. 736-774, figg.
- †*L. tornquisti*, p. 742, *discors*, p. 759, *præcurrens*, p. 763, Silurian of Sweden, HOLM, Geol. Fören. Stockholm Förhandl. xiii, figg., n. spp.
- †*Orthoceras semiplanatum*, p. 81, *selkirkense*, *winnipegense*, p. 82, n. spp., Trenton Limestone of the Winnipeg Basin, WHITEAVES, Tr. R. Soc. Canada, ix, 4, figg.
- †*Poterioceras gracile*, n. sp., Trenton Limestone of the Winnipeg Basin, WHITEAVES, Tr. R. Soc. Canada, ix, No. 4, p. 87, fig.
- †*Sactoceras canadense*, n. sp., Trenton Limestone of the Winnipeg Basin, WHITEAVES, Tr. R. Soc. Canada, ix, No. 4, p. 85, fig.

## II. GASTROPODA.

Anatomical observations ; BOUVIER, C.R. Soc. Biol. iv, p. 987.—Asymmetry of *Gastropoda* ; BUCHNER, J.H. Ver. Württ. xlviii, pp. 58–92.—Coiling of the shell in embryonic *Gastropoda* ; FISCHER, H., J. de Conch. 1892, pp. 309–313.

See also *ante*, GENERAL.

Researches on the morphology of the liver of *Gastropoda* ; FISCHER, H., Bull. Sci. Fr. Belg. xxiv, pp. 260–346, 7 pls.

Pelagic Gastropod larvæ of the Plankton Expedition ; SIMROTH, SB. Ges. Leipzig, xviii, pp. 98–107.

† Monograph of British Jurassic *Gastropoda* ; HUDLESTON (191).

† Catalogue of British Jurassic *Gastropoda* ; HUDLESTON & WILSON (192).

## PULMONATA.

Physiological observations ; CUÉNOT, Arch. Biol. xii, pp. 683–740, 1 pl.: vision ; WILLEM, t. c. pp. 57–122, fig.—Excretion in the *Pulmonata* ; CUÉNOT, C.R. cxv, pp. 256–258.

Remarks on Australian slugs ; HEDLEY, Ann. N. H. ix, p. 169 ; COCKERELL, t. c. p. 370.

## STYLOMMATOPHORA.

## TESTACELLIDÆ.

List of British species ; COLLINGE, Brit. Nat. 1892, p. 178.

*Testacellidæ* of the Caucasus, notes on ; SIMROTH, Verh. Deutsch. Zool. Ges. i (1891), pp. 57 & 58.

(*Ærope*) *Helix trimeni, eumacta*, South Africa, MELVILL & PONSONBY, Ann. N. H. x, p. 237, figg., n. spp.

*Anceya admirabilis*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 119, fig., n. sp.

*Apera burnupi*, S. Africa, SMITH, Ann. N. H. 1892, p. 466, n. sp.

*Colpanostoma leroyi*, N'gourou, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 48, fig., n. sp.

*Edentulina grandidieri*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 142, fig., n. sp.

*Elma mitis*, China, HEUDE, (186) p. 152, fig., n. sp.

*Ennea consobrina*, Albany, S. Africa, ANCEY, Brit. Nat. 1892, p. 125 ;

*E. (microstrophia) densecostata*, Middle Liu-Kiu Is., BETTGER, Nachr. mal. Ges. 1892, p. 159 ; *E. fargesiana*, China, HEUDE, (186) p. 152, fig. ; *E. stuhlmanni*, Uganda, MARTENS, SB. nat. Fr. 1892, p. 16 ;

*E. limbata, excavata*, p. 178, *planidens*, (*Ptychotrema*) *runsorana*, p. 179, N. E. Africa, MARTENS, SB. nat. Fr. 1892 ; *E. grossa*,

Usambara, *conospira*, Cameroons, MARTENS, SB. nat. Fr. 1892, p. 182 ; *E. thelodonta*, p. 85, *munita, dolichoskia*, p. 86, *bowkeræ, marie*, p. 92, *aperostoma, scrobiculata*, p. 93, S. Africa, MELVILL & PONSONBY,

- Ann. N. H. ix, figg. ; *E. (Uniplicaria) kendigiana*, Gorée, Senegambia, ROLLE, Nachr. mal. Ges. 1892, p. 50 : n. spp.
- Hapalus conoideus*, n. sp., Butumbi, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 177.
- Marconia*, n. g., type *Ennea lata*, Smith, with *M. gibbosa, recta*, n. spp., E. Centr. Africa ; BOURGUIGNAT, (37) 1889, pp. 135-138, figg.
- Selenochlamys* : description and anatomy ; SIMROTH, (351) p. 54.
- [*Streptaxis*] *Happia dalliana*, E. Bolivia, ANCEY, Journ. Conch. vii, p. 90 ; [S.] *Gonaxis bloyeti*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 134, fig. ; *S. simonianus, theæcola*, China, HEUDE, (186) p. 151, figg. ; *S. dugasti*, Tonkin, MORLET, J. de Conch. 1892, p. 82 : n. spp.
- Streptostile costulata*, n. sp., Butumbi, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 178.
- Tayloria jouberti*, n. sp., Nyantaga, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 47, fig.

## LIMACIDÆ.

- List of British naked species ; COLLINGE, Brit. Nat. 1892, pp. 178 & 179.
- Limacidæ* of the Caucasus, notes on ; SIMROTH, Verh. Deutsch. Zool. Ges. i, 1891, pp. 57 & 58. *Limacidæ* of New Zealand ; SUTER, J. de Conch. 1892, p. 250-255.
- Agriolimax subagrestis*, p. 41, *agresticulus*, n. spp., Caucasus, SIMROTH, SB. Ges. Leipzig, xviii.
- Charopidæ* should form a subfam. of *Zonitidæ*, and not be placed with *Helicidæ* ; HEDLEY, P. Linn. Soc. N.S.W. vii, pp. 157-169, figg.
- Euplecta orientalis*, n. sp., Timor Laut Is. ; MOELLENDORFF, Nachr. mal. Ges. 1892, p. 54.
- Guppya anguina*, E. Bolivia, ANCEY, Journ. Conch. vii, p. 91 ; *G. championi*, p. 119, *pittieri, biolleyi*, p. 121, *orosiana*, p. 123, Central America, MARTENS, Biol. Centr. Am. Moll. figg. : n. spp.
- Helicarion musgravi*, Hedley, jaw and radula ; HEDLEY, P. Linn. Soc. N.S.W. vi, p. 687, figg.
- H. tenimbericus*, n. sp., Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, p. 83.
- Hyalinia* : notes on the genus ; JHERING, Nachr. mal. Ges. 1892, pp. 132-140.
- H. horsti*, Caucasus, BÆTTGER in SIMROTH, SB. Ges. Leipzig, xviii, p. 50 ; *H. glomerula*, Guatemala, *hoffmanni*, Costa Rica, p. 115, *stolli*, Guatemala, p. 118, MARTENS, Biol. Centr. Am. Moll. figg. ; *H. gomezi*, Bogota, SOWERBY, P. Z. S. 1892, p. 298, fig. ; *H. laeviuscula*, Texas, STERKI, Naut. vi, p. 53 ; *H. (Polita) upsaliensis*, p. 25, Upsala, *bellis*, p. 26, *senilis*, Sicily, (*Mesomphix*) *spratti*, Crete, p. 44, WESTERLUND, Verh. z.-b. Wien (Abh.), xlii : n. spp.
- [See also infra, *Zonites*.]
- Limax* : sensory nervous system ; RETZIUS, Biol. Untersuch. N. F. iv, pp. 11-18, figg. *Limax, Arion*, and *Helix* : note on the affinities of ; SCHARF, Conchologist, ii, pp. 14, 83, & 84 ; COCKERELL, t. c. pp.

- 28 & 29. *L. agrestis*, Linn, in California ; RAYMOND, Naut. v, p. 101.  
*L. maxinus*, L., and its var. *cinereo-niger*, Wolf, notes on ; COLLINGE,  
 Ann. N.H. x, pp. 425 & 426.
- L. natalianus*, n. sp., Semiretschje, Turkestan, MIKHAÉLIS (254).  
*Lytopelte transcaspia, bættgeri*, n. spp., Transcaspia ; ROSEN, Nachr. mal.  
 Ges. 1892, pp. 123-124.
- Macrochlamis simplex*, n. sp., China ; HEUDE, (186) p. 135, fig.  
 (*Macrocyclis*) *Helix cænotera, liparoxantha*, n. spp., S. Africa ; MELVILL  
 & PONSONBY, Ann. N. H. x, p. 238, fig.
- Mesolimæx reibischi*, n. sp., Caucasus, SIMROTH, SB. Ges. Leipzig, xviii,  
 p. 43.
- Microcystina sappho*, Brazier, jaw and radula ; HEDLEY, P. Linn. Soc.  
 N.S.W. vi, p. 686, figg.
- Moaria chaperiana*, n. sp., Usagara, BOURGUIGNAT, (37) 1889, p. 14.
- Nanina hunsteini*, Smith, *divisa*, Forbes, jaws, radulæ, and genitalia ;  
 HEDLEY, P. Linn. Soc. N.S.W. vi, pp. 685 & 686, figg.
- N. (Ariophanta) dohertyi*, Sumatra, ALDRICH, Naut. vi, p. 90 ; *N. hypochlora*, Cape of Good Hope ; MELVILL & PONSONBY, Ann. N. H. ix,  
 p. 87, fig. ; *N. cochlostylodes*, Sœmba, SCHEPMAN, Notes Leyd. Mus.  
 xiv, p. 148, fig. : n. spp.
- Omphalina modesta*, p. 110, *sallœana*, p. 112, *sculpta*, p. 113, n. spp., Mexico ;  
 MARTENS, Biol. Centr. Am. Moll., figg.
- Paralimæx reibischi*, n. sp., Caucasus, SIMROTH, SB. Ges. Leipzig, xviii,  
 p. 42.
- Pseudohyalina cidariscus*, n. sp., S. E. Mexico, MARTENS, Biol. Centr. Am.  
 Moll. p. 126, fig.
- Pseudomilæx* : description and anatomy ; SIMROTH, (351) p. 52.
- Sitala brancsiki, filomarginata*, n. spp., Is. Nossi-Bé (Madagascar),  
 BÆTTGER, Nachr. mal. Ges. 1892, pp. 53 & 54.
- Trigonochlamys* : description and anatomy ; SIMROTH, (351) p. 55.
- Trochonanina leroyi*, p. 18, *bloyeti*, p. 21, n. spp., Usagura, BOURGUIGNAT,  
 (37) 1889, figg.
- (*Trochozonites*) *Helix dioryx*, n. sp., South Africa, MELVILL & PONSONBY,  
 Ann. N. H. ix, p. 89, fig.
- Vitrina fuscicolor*, p. 240, *chrysoprasina*, p. 241, n. spp., South Africa,  
 MELVILL & PONSONBY, Ann. N. H. x, figg.
- Vitrinoides* : n. subg. ? of *Limæx* ; SIMROTH, SB. Ges. Leipzig, xviii,  
 p. 41.
- Xesta micholitzii*, n. sp., Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges.  
 1892, p. 84, fig.
- Zonites tenerimus*, Bosnia, BRANCSIK, Evkôn. Trencsen Varm. xii, 1890,  
 p. 68 ; *Z. caroliniensis*, North Carolina, COCKERELL in BINNEY, Bull.  
 Mus. C. Z. xxii, p. 167, fig. ; *Z. (Hyalinia) baueri*, Galapagos Is.,  
 DALL, Naut. v, p. 98 ; *Z. shepardi*, p. 167, *diegoensis*, p. 168, Cali-  
 fornia, HEMPHILL in BINNEY, Bull. Mus. C. Z. xxii, figg. ; *Z. brittsii*,  
 Arkansas, PILSBRY, Naut. v, pp. 99 : n. spp. [See also *suprà*,  
*Hyalinia*.]

## HELICIDÆ.

New classification of the *Helices* proposed by PILSBRY, P. Ac. Philad., 1892, pp. 387-404.—Supplement to monograph on *Helix*, PILSBRY in TRYON'S Manual, 2nd Series, viii, pp. 55-78.

## ARIONIDÆ.

List of British Species ; COLLINGE, Brit. Nat. 1892, p. 178.—Review of the British *Arionidæ* ; COLLINGE, Conch., ii, pp. 56-66 & 76-83 : criticised by COCKERELL, *t. c.* pp. 84 & 85 : reply ; COLLINGE, *t. c.* 85 & 86. *Arionidæ* of New Zealand ; SUTER, J. de Conch. 1892, pp. 250-255. *Arion*, *Limax*, and *Helix*, note on the affinities of ; SCHARFF, Conchologist, ii, pp. 14, 83 & 84 : COCKERELL, *t. c.* pp. 28 & 29. *Arion* : variation of the genus ; COLLINGE, Ann. N. H. ix, pp. 307 & 308 : sensory nervous system ; RETZIUS, Biol. Untersuch. iv, pp. 11-18, fig. *Arion hortensis*, Fér, and *circumscriptus*, Johnst., new vars. ; COLLINGE, Conchologist, ii, pp. 26 & 27. *A. intermedius*, Normand, remarks on colour changes ; GAIN, Conchologist, ii, pp. 55 & 56. *Hesperarion*, n. g. for *Ariolimax niger*, Coop. ; SIMROTH, Mal. Bl. xi, p. 111.

## BULIMIDÆ.

*Bulimus oblongus*, note on ; GUPPY, P. Z. S. 1892, pp. 271 & 272. *B. (Rachis) jouberti*, p. 61, *pachistoma*, p. 62, *elongatulus*, p. 63, E. Cent. Africa, BOURGUIGNAT, (37) 1889, figg. ; *B. (Amphidromus) columellaris*, Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, p. 98, fig. ; *B. guentheri*, U. S. of Colombia, SOWERBY, P. Z. S. 1892, p. 296, fig. ; *B. (Mastus) hispalensis*, Spain, WESTERLUND, An. Soc. Esp. xxi, p. 387 : n. spp.

## COCHLOSTYLA GROUP.

*Cochlostyla* : monograph completed ; PILSBRY in TRYON'S Manual, 2nd Series, viii : sections *Orthostylus*, *Hypselostyla*, *Eudoxus*, *Phengus*, *Canistrum*, *Prochilus*, and *Chrysallis*. *C. (Corasia) tenimberica*, n. sp., Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, p. 97, fig.

## HELICIDÆ s.s.

*Hadra* and *Camaena*, reply to Moellendorff ; PILSBRY, Nachr. mal. Ges. 1892, pp. 69-73. *Helix*, *Arion*, and *Limax*, note on the affinities of ; SCHARFF, Conchologist, ii, pp. 14, 83 & 84 : COCKERELL, *t. c.* pp. 28 & 29. *Helix* : muscular apparatus of the radula ; LOISEL, xxviii, pp. 566-572, figg. : anatomy of the genital apparatus with notes on the radulæ and jaws ; SCHUBERTH, Arch. f. Nat. lviii, pp. 1-65, figg. : morphology of the genital apparatus ; JHERING, Z. wiss. Zool. liv, pp. 386-520, figg. *Panda* : note on the group. PILSBRY, Naut. vi, p. 9, considers it to be a development from the Bulimoid branch instead of the Helicoid stem of *Helicidæ*.

*Plecteulota*, n. subsect. of *Eulota*, type *E. goniosstoma*, MOELLENDORFF.

[See *infra*, Palæotropical Oriental Species, p. 61.]

*Suteria*, n. sect. of *Helix*, type *H. ide*, Gray; PILSBRY, Naut. vi, p. 56, and TRYON'S Manual, 2nd Series, viii, p. 69.

*Thalassohelix*, n. sect. of *Helix*, type *H. zelandiæ*; PILSBRY, Naut. vi, p. 56, and TRYON'S Manual, 2nd Series, viii, p. 71.

*Xerophila*: note on some groups of species of; POLLONERA, Boll. Mus. Zool. Tor. vii, No. 128.

(PALÆARCTIC SPECIES.)

*Helix aspersa*: on the repair of the shell; MOYNIER DE VILLEPOIX, Bull. Soc. Z. Fr. xvii, p. 30. *H. aspersa*, Müll., reproduction of dart; STANDEN, Journ. Conch. vii, pp. 33-38. *H. arbustorum*, Müll., note on the periostracum; TYE, Conchologist, ii, pp. 53 & 54. *H. ericetorum*, Müll., and *H. candicans*, Ziegl., at Landsberg-a-W.; KRAUSE, SB. nat. Fr. 1892, p. 141. *H. hortensis* and *memoralis*, classification of varr.; EYRE, Conchologist, ii, pp. 7-10; MACDONALD, t. c. pp. 27 & 28. *H. pomatia*, var.; GREDLER, Nachr. mal. Ges. 1892, p. 174. *H. (Egista) platyomphala*, Mlldff, anatomy; PILSBRY, P. Ac. Philad. 1892, p. 214, fig.

*H. (Cressa) giurica*, Giura I. [Grecian Arch.], BËTTGER, Nachr. mal. Ges. 1892, p. 59; *H. osoria*, Bosnia, BRANCSIK, Evkôn. Trencsén Varm. xii, 1890, p. 69; *H. secundaria*, p. 136, *serpestes*, *turbinella*, p. 137, *vicinella*, *languescens*, *molina*, p. 138, *sapeca*, *sterilis*, p. 143, *rhinocerotica*, *galera*, p. 144, *subsquamulata*, *ingloria*, *vitreola*, *ternaria*, *anomia*, p. 145, *alveolus*, p. 146, China, HEUDE (186), figg.; *H. (Campylæa) broemmeri*, Klissura Pass, in Acarnania (Greece), KOBELT in ROSSMAESSLER, (322) v, p. 108, fig.; *H. (Xerophila) mentita*, Palermo, p. 2; *ilvatica*, Piedmont, p. 3, *trimetina*, Is. Pianosa, *balteata*, Tudu Mannu, p. 4, *warnierella*, p. 5, *cliens*, p. 6, *parca*, p. 7, *Fernana*, *arida* (Monter. MS.), Palermo, p. 7, *stossiciana*, Trieste, p. 9, *trincrina*, Palermo, *nerusia*, Grasse, p. 11, *mendica*, Rapallo, p. 14, *janalis*, Genova, *senensis*, Siena, p. 15, *pistoriana*, Pistoia, *margarita*, Oran, *elusatica*, S. France, p. 16, *bigeronica*, Lourdes, *festæ*, Tunis, *roucayroli*, Algeria, p. 17 [alleged n. spp.], POLLONERA, Boll. Mus. Zool. Tor. vii, No. 128; *H. (Xerophila) mutua*, *pumila*, *adina*, *horridula*, *embryonata*, (*Macularia*) *leucochila*, Spain [alleged n. spp.], WESTERLUND, Nachr. mal. Ges. 1892, pp. 187-191; *H. (Xerophila) mutua*, p. 385, *pumila*, *horridula*, *embryonata*, p. 386, (*Macularia*) *leucochila*, p. 387, Spain [alleged n. spp.], WESTERLUND, An. Soc. Esp. xxi; *H. (Xerophila) patriarcharum*, Palestine, *clausella*, Spain, *bougzoulensis*, Algeria, p. 28, *mesopotamica*, Syria, *batuensis*, *marconi*, Algeria, *promissa*, Spain, p. 29, *pinguis*, Alexandria, p. 30, *masthorella*, Sicily, *modestissima*, Sardinia, *neptuni*, Italy, p. 31, *euaxes*, Gibraltar, *poichila*, Algeria, *amblia*, Spain, p. 32, *lampira* [= *ericetorum*], Ireland, p. 33, *mexensis*, Egypt, (*Pomatia*) *beilanica*, Syria, (*Cressa*) *medea*, Crete, *hypsa*, Tunis, p. 45, (*Xeroleuca*) *apaturia*, Libya, p. 46 [alleged n. spp.] WESTERLUND, Verh. z.-b. Wien, xlii: n. spp.

## (PALÆOTROPICAL AFRICAN SPECIES.)

- Helix melvilliani*, n. n. for *H. chapmani*, preocc., W. Africa; ANCEY, Brit. Nat. 1892, p. 126.
- H. bellula*, Uganda, MARTENS, SB. nat. Fr. 1892, p. 15; *H. karewia*, Karewia, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 175; *H. farquhari*, Port Elizabeth, MELVILL & PONSONBY, Ann. N. H. x, p. 240, fig.; *H. (Pella) trichosteiroma*, *epetrina*, p. 84, *lygæa*, p. 85, *rhysodes*, p. 87, *tuguriolum*, *erateina*, p. 88, *bathycoele*, p. 89, S. Africa, MELVILL & PONSONBY, Ann. N. H. ix, figg.; *H. (Pella) actinotricha*, p. 238, *burnupi*, *conisalea*, p. 239, *minythodes*, p. 240, S. Africa, MELVILL & PONSONBY, Ann. N. H. x, figg. : n. spp.

## (PALÆOTROPICAL ORIENTAL SPECIES.)

- H. (Plectopylis) fultoni*, Khasi Hills?, Assam, GODWIN-AUSTEN, Ann. N. H. 1892, p. 300; *H. (Eulota) hemisphaerica*, p. 90, *tenimberica*, *bitaeniata*, p. 91, fig. 1, (*Plecteulota*) *goniostoma*, p. 92, fig., *telitecta*, p. 93, fig., Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892; *H. (Chloritis) rhodochila*, *micholitzii*, *tenuitesta*, Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, pp. 95 & 96, figg.; *H. (Plectotropis) hyperteleia*, Laos, p. 82, (*Phania*) *dugasti*, Tonkin, p. 83, MORLET, J. de Conch. 1892; *H. (Chloritis) remoratrix*, Laos, MORLET, J. de Conch. 1892, p. 317, fig.; *H. supracostulata*, Soemba, SCHEPMAN, Notes Leyd. Mus. xiv, p. 150, fig. : n. spp.

## (AUSTRALIAN AND POLYNESIAN SPECIES.)

- Helix (Chloritis) leeii*, Cox, *chloritoides*, Pilsbry, jaws and radulæ, with genitalia of *leeii*; HEDLEY, P. Linn. Soc. N.S.W. vi, pp. 687 & 688, figg. *H. (Cristigibba) macgregori*, Hedley, jaw and radula; HEDLEY, P. Linn. Soc. N.S.W. vi, p. 687, figg. *H. (Geotrochus) brumeriensis*, Forbes, *lousiadensis*, Forbes, *rollsianus*, Smith, *woodlarkianus*, Souv., *trobriandensis*, Hedley, *boyeri*, Fisch. & Bern., jaws, radula, and genitalia; HEDLEY, P. Linn. Soc. N.S.W. vi, pp. 689-691, figg. *H. (Hadra) gulosa*, Gould, synonymy of; BRAZIER, P. Linn. Soc. N.S.W. vi, pp. 321-328. *H. (Hadra) broadbenti*, Brazier, jaw, radula, and genitalia; HEDLEY, P. Linn. Soc. N.S.W. vi, p. 688, figg. *H. (Panda) atomata*, Gray, note on structure and affinities; HEDLEY, Rec. Austral. Mus. ii, pp. 26-31, 3 pls.
- H. (Hadra) everardensis*, *elderi*, Elder River, Central Australia; BEDNALL, Tr. R. Soc. S. Austr. xvi, pp. 64 & 65, figg.; *H. (Hadra) oscarensis*, p. 565, *derbyi*, p. 566, Solomon Is., COX, P. Linn. Soc. N.S.W. vi, figg.; *H. aggiei*, Solomon Is., HEIMBURG, Mal. Bl. xi, p. 158, figg.; *H. (Geotrochus) hedleyi*, New Guinea?, SMITH, Journ. Conch. vii, p. 72; *H. (Planispira) halmaherica*, p. 44, (*Geotrochus*) *chondrodes*, p. 45, (*Albersia*) *pseudocorasia*, p. 47, Halmahera [Moluccas], STRUBELL, Nachr. mal. Ges. 1892; *H. (Amphidoxa) olivacea*, Auckland, SUTER, Tr. N. Z. Inst. xxiv, p. 290, fig. : n. spp.

## (NEOTROPICAL SPECIES.)

- H. (Caracolus) rostratus, acutus*, anatomy ; PILSBRY, P. Ac. Philad. 1892, pp. 128 & 129, fig. *H. (C.) orbiculata*, Fér., anatomy ; PILSBRY, P. Ac. Philad. 1892, p. 214, fig. *H. (Cysticopsis) tenerrima*, C. B. Ad., anatomy ; PILSBRY, P. Ac. Philad. 1892, p. 214, fig. *H. (Hemitrochus) salvatoris*, anatomy ; PILSBRY, P. Ac. Philad. 1892, p. 129, fig. *H. (Sagda) similis*, C. B. Ad., anatomy ; PILSBRY, P. Ac. Philad. 1892, p. 213, fig.
- H. creveauxiana*, W. Columbia, ANCEY, Bull. Soc. Mal. Fr. vii, 1891, p. 152 ; *H. (Systrophia) alcidiana*, Brazil, ANCEY, Journ. Conch. vii, p. 91 ; *H. (Lucerna) vendryesi*, Jamaica, COCKERELL, J. Inst. Jamaica, i, p. 55 [nom. preocc. and sp. not new, = *H. sloaneana*, Shuttlw. var.] ; *H. altispira*, Honduras, MARTENS, Biol. Centr. Am. Moll. p. 156, fig. ; *H. (Polygyra) dissecta*, p. 167, *richardsoni*, p. 168, Mexico, MARTENS, Biol. Centr. Am. Moll. figs. ; *H. sieversi*, New Granada, MARTENS, Conch. Mittheil. iii, 1889, p. 7, fig. : n. spp.

## (NEARCTIC SPECIES.)

- [*Helix*] *Vallonia* : notes on N. American forms ; STERKI, Naut. v, pp. 100 & 101. *H. (Mesodon) andrewsi* in Missouri ; SAMPSON, Naut. vi, p. 90.
- H. sargenti*, n. sp., Woodville, Alabama, JOHNSON & PILSBRY, Naut. vi, p. 8.

## (FOSSIL FORMS.)

- Grandipatula*, n. sect. of *Helix*, type † *H. hemispharica*, Mich. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv, 1889, p. 354.
- Sagdellina*, n. sect. of *Helix*, type † *H. chevallieri*, Cossm. ; Cat. Coqu. Foss. Eocene Paris, iv, 1889, p. 353.

## (PHENACOHELICIDÆ.)

Under *Phenacoheliciidæ*, SUTER (Tr. N. Z. Inst. xxiv, p. 271) includes the following genera of New Zealand heliciform *Mollusca* :—*Phacussa*, *Thalassia*, *Gerontia*, *Psyra*, *Pyrria*, *Therasia*, *Phenacohelix*, *Patulopsis* [nom. nov. for *Charopa*, Hutton], *Amphidoxa*, and *Calymna*. The family is characterized as animal heliciform, possessing a caudal gland ; jaw ribbed, stegognath ; teeth of radula show all intermediate forms, from aculeate to quadrate ; shell, that of *Helix*, flat or elevated, umbilicated or imperforate ; peristome acute, aperture without lamellæ ; periostracum smooth or ribbed, seldom hairy. *Phacussa* stands nearest to *Limacidae*, *Amphidoxa* and *Calymna* to *Patulidae*. [PILSBRY, P. Ac. Philad. 1892, pp. 401 & 402, includes this group in the genus *Endodonta*, as restricted by him.]

## PATULA GROUP.

*Aeschrodomus*, n. n. for *Thera* (sect. of *Patula*); PILSBRY, Naut. vi, p. 55, note.

*Charopa* and allied forms: notes on; PILSBRY, Naut. vi, pp. 67-69.

*Charopidae* are not *Helicidae*, but should form a subfamily of *Zonitidae*; 4 species are redescribed and figured; HEDLEY, P. Linn. Soc. N.S.W. vii, pp. 157-169.

*Diaglyptus*, n. sect., type *P. pagodiformis*, Smith (= *P. bilamellata*, Pfr.); PILSBRY in TRYON (410) p. 86.

*Endodonta leimonias*, Gray, *pæcilocostica*, Pf., are removed to *Phriagnathus* (*Laoma*); SUTER, Tr. N. Z. Inst. xxiv, p. 271.

*Helenoconcha*, n. sect., type *P. bilamellata*, Sow.; PILSBRY in TRYON (410) p. 91.

*Patula*: Supplement to monograph; PILSBRY in TRYON (410). *P. strigosa*, Gould, in Arizona; STEARNS, Naut. vi, p. 1.

*P. (Discus) brunnescens*, Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, p. 87; *P. (Microphysa) intonsa*, Mexico, PILSBRY in TRYON (410) p. 111, figg.; *P. persoluta*, *latissima*, p. 261, *vernoni*, *pseustes*, p. 262, *minutissima*, *leptalea*, p. 264, St. Helena, SMITH, P. Z. S. 1892, figg.; [*P.*] *Helix chaperi*, Switzerland, WESTERLUND, Verh. z.-b. Wien, xlii, p. 27: n. spp.

*Phriagnathus transitans*, New Zealand; SUTER, Tr. N. Z. Inst. xxiv, p. 297, fig.

*Pitys*: notes on; SUTER, J. de Conch. 1892, pp. 245-248.

*Ptychodon magdalene*, n. sp., New Zealand, ANCEY, Brit. Nat. 1891, p. 65.

*Trochomorpha fritzei*, n. sp., Middle Liu-Kiu Is., BÆTTGER, Nachr. mal. Ges. 1892, p. 160.

## BULIMULIDÆ.

*Amphidromus latestrigatus*, p. 151, Soemba, *reflexilabris*, p. 152, Timor, SCHEPMAN, Notes Leyd. Mus. xiv, figg., n. spp.

*Bulimulus germaini*, Brazil, ANCEY, Journ. Conch. vii, p. 92; *B. (Placostylus) hobsoni*, Solomon Is., COX, P. Linn. Soc. N.S.W. vi, p. 567, figg.; *B. chaperi*, Mexico, CROSSE & FISCHER, J. de Conch. 1892, p. 296; *B. (Naesiotus) invalidus*, *venustus*, p. 17, *pallidus*, p. 18, *cinereus*, *ventrosus*, p. 19, *acutus*, p. 20, *curtus*, *nudus*, p. 21, *wolff*, p. 22, *simrothi*, p. 23, (*Pleuropyrargus*) *terebra*, p. 24, *lima* (*Pelecostoma*, n. sect.), *canaliferus*, p. 25, *cymatoferus*, p. 26, Galapagos Is., REIBISCH, SB. Ges. Isis, 1892, figg.; *B. subtruncatus*, *turtoni*, St. Helena, SMITH, P. Z. S. 1892, p. 266, figg.; *B. koppeli*, *da-costæ*, *glandiniformis*, Bogota, SOWERBY, P. Z. S. 1892, p. 297, figg.; *B. (Pleuropyrargus) habeli*, Galapagos Is., STEARNS, Naut. vi, p. 86 (& v, pp. 98 & 99): n. spp.

*Diplomorpha coxi*, n. sp., New Hebrides, HARTMAN, P. Linn. Soc. N.S.W. vi, p. 571, fig.

*Partula*: catalogue of the genus begun by HARTMAN, Naut. vi, pp. 73-76.

*Pelecostoma*, n. sect. of *Bulimulus* [*q.v.*].

## BULIMINIDÆ and PUPIDÆ.

- Pupidæ* of North America [= U. S.] ; STERKI, Naut. vi, pp. 2-8.
- Balea*, viviparous nature of ; ROGERS, Journ. Conch. vii, p. 40.
- Buliminidius larvatus*, *pupatus*, n. spp., China, HEUDE (186) p. 146, figg.
- Buliminopsis quaternarius*, *conoidius*, n. spp., China, HEUDE, (186) p. 147, figg.
- Bulim[in]us lourdeli*, p. 51, *bridouxi*, p. 53, Usagara, BOURGUIGNAT, (37) 1889, figg. ; *Buliminus aureus*, p. 148, *meronianus*, *meleagrinus*, p. 149, *guilcherianus*, *vidianus*, *antisealinus*, *amedeanus*, *loliaceus*, p. 150, China, HEUDE (186), figg. ; *B. trapezoideus*, Mt. Runso, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 176 ; *B. layardi*, Kobis (Becuanaland), *quisqualis*, Moçambie (Angola), *lamoensis*, Lamo, E. Africa, MELVILL & PONSONBY, Ann. N. H. ix, p. 90, figg. ; *B. (Amphiscopus) continens*, Transcaspia, ROSEN, Nachr. mal. Ges. 1892, p. 125 ; *B. (Mastus) hispalensis*, Spain, WESTERLUND, Nachr. mal. Ges. 1892, p. 192 ; *B. (Napaeus) djurdjurenensis*, Algeria, (*Chondrulus*) *montandoni*, Dobrudscha, *movradi*, Asia Minor, p. 35, *granulatus*, Samaria, p. 36, *ponsonbyi*, Lycia, p. 47, (*Mastus*) *mestus*, Sofrano Is., p. 46, WESTERLUND, Verh. z.-b. Wien, xlii : n. spp.
- Clausilia (Nenia) orbigny*, Bolivia, ANCEY, Brit. Nat. 1892, p. 126, Le Nat. 1892, p. 178, figured in Journ. Conch. vii, p. 97 ; *C. (Albinaria) broemmei*, Chelmos, near Kalavryta (Greece), BËTTGER, Nachr. mal. Ges. 1892, p. 64 ; *C. (Delima) optabilis*, Bosnia, BRANCSIK, Evkôn. Trencsen Varm. xii (1890) p. 73 ; *C. (Papillifera) melitensis*, Matta, CARUANA-GATTO, Med. Nat. i, p. 148 ; *C. retorta*, p. 153, *friniana*, p. 160, *loloensis*, p. 161, China, HEUDE (186), figg. ; *C. (Phædusa ?) massiei*, Laos, MORLET, J. de Conch. 1892, p. 83 ; *C. paviei*, p. 319, *dautzenbergi*, p. 320, Laos, MORLET, Journ. Conch. 1892, figg. ; *C. magistra*, Bogota, SOWERBY, P. Z. S. 1892, p. 298, fig. ; *C. (Alopia) deubeli*, Siebenburgen, p. 38, (*Delima*) *calabacensis*, Greece, p. 39, (*Cristataria*) *calopleura*, Syria, (*Cusmicia*) *vestigans*, Carniolian Alps, p. 41, WESTERLUND, Verh. z.-b. Wien, xlii : n. spp.
- Coeliazis australis* is generically distinct from the type *C. layardi*, and is referable to *Perrieria*, Tap.-Can. *C. exigua*, Adams, is a syn. of *C. australis*, and is not a Solomon Is. species ; HEDLEY, P. Linn. Soc. N.S.W. vii, pp. 311-313.
- Eucalodium compactum*, n. sp., Tabasco, Mexico, PILSBRY, P. Ac. Philad. 1892, p. 338, fig.
- Holospira* : notes on the genus and its distribution ; CROSSE & FISCHER, J. de Conch. 1892, pp. 256-279, 1 pl.
- Odontostomus lemoinei*, n. sp., Bolivia, ANCEY, Le Nat. 1892, p. 178, and Journ. Conch. vii, p. 93, fig.
- Pachnodus leroyi*, p. 65, *sesamorum*, p. 66, n. spp., E. Centr. Africa, BOURGUIGNAT, (37) 1889, figg.
- Perrieria* : notes on the genus ; HEDLEY, P. Linn. Soc. N.S.W. vii, pp. 311-313.

- Pupa monadicula*, China, HEUDE, (186) p. 152, fig. *P. ringens*, in Guernsey; MARQUAND, J. Conch. vii, p. 44. *P. coloradensis* and *ingersolli*; for notes purporting to be descriptions of these *nom. nud.*, see COCKERELL, Brit. Nat. 1891, pp. 100 & 101.
- P. acanthinula*, p. 709, *lyonsiana*, p. 713, *magdalenæ*, p. 716, Sandwich Is., ANCEY, Mém. Soc. Zool. v; *P. anodonta*, Queensland, HEDLEY & MUSSON, P. Linn. Soc. N.S.W. vi, p. 558, fig.; *P. elizabethensis*, Port Elizabeth, *ovampoensis*, Ovampoland (Damaraland), MELVILL & PONSONBY, Ann. N. H. ix, p. 91, fig.; *P. (Leucochila) munita, clausa*, Galapagos Is., REIBISCH, SB. Ges. Isis, 1892, p. 27, fig.; *P. turtoni, obliquicostata*, St. Helena, SMITH, P. Z. S. 1892, p. 268, figg.; *P. (Torquilla) retracta*, Spain, WESTERLUND, An. Soc. Esp. xxi, p. 388; *P. (T.) refuga, homala*, Sicily, p. 192, *retracta*, Spain, p. 194, (*Pupilla*) *honesta*, Italy, p. 194, WESTERLUND, Nachr. mal. Ges. 1892; *P. (Torquilla) domicella*, Lourdes, *hetaera*, Pyrénées Orientales, p. 36, *occidentalis*, Hautes-Pyrénées, *migma*, Pyrénées Orientales, *appeliusi*, Dalmatia, p. 37, WESTERLUND, Verh. z.-b. Wien, xlii : n. spp.
- Rachisellus burtoi*, p. 69, *ledoulxi*, p. 70, n. spp., E. Centr. Africa, BOURGUIGNAT, (37) 1889, figg.
- Tomigerus* (?) *peregrinus*, n. sp., St. Helena, SMITH, P. Z. S. 1892, p. 267, fig.

## STENOGYRIDÆ.

- Achatina bloyeti*, p. 82, *arctespirata*, p. 83, *randabeli*, p. 84, E. Centr. Africa, BOURGUIGNAT, (37) 1889, figg.; *A. (Burtoa) bridouxiana*, p. 92, *sebsamia*, p. 93, *pethericki*, p. 95, *lavigeriana*, p. 96, E. Centr. Africa, BOURGUIGNAT, (37) 1889, figg.; *A. (Burtopsia) jouberti*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 99, fig.; *A. (Limicolaria) charbonnieri*, p. 104, *megalæa*, p. 105, *coulboisi*, p. 106, *dromauxi*, p. 107, *sepulchralis*, p. 108, *lamellosa*, p. 109, E. Centr. Africa, BOURGUIGNAT, (37) 1889, figg.; *A. (Serpæa) pintoï*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 86, fig. : [alleged n. spp.]. *A. (Perideris) lechatelierii*, Dahomey, DAUTZENBERG, J. de Conch. 1892, p. 297; *A. stuhlmanni*, Ituri, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 176; (*Homorus*) *pyramidella*, Cameroons, MARTENS, SB. nat. Fr. 1892, p. 181; *A. dimidiata* [preocc., SMITH, 1878], Gaboon, MARTENS, Conch. Mittheil. iii, 1889, p. 17, fig. : n. spp. [See also *infra*, *Stenogyra*.]
- [*Cæcilianella*] *Achatina acicula*, in a Roman cemetery; SOMERVILLE, Journ. Conch. vii, pp. 42 & 43.
- Cæcilianella baldwini*, Sandwich Is., ANCEY, Mém. Soc. Zool. v, p. 718; *C. gattoi, melitensis, polloneræ*, Malta, WESTERLUND in CARUANA-GATTO, Med. Nat. ii, p. 227 : [alleged n. spp.].
- Cionella ovampoensis*, Ovampoland (Damaraland), MELVILL & PONSONBY, Ann. N. H. ix, p. 91, fig.; *C. (Ferussacia) virginea*, p. 195, Spain, (*Cæcilianella*) *gattoi*, p. 195, *melitensis, polloneræ*, p. 196, Malta, 1892. [VOL. XXIX.]

- WESTERLUND, Nachr. mal. Ges. 1892; *C. (Ferussacia) extrema*, Marocco, *stenophya*, *bourlieri*, Algeria, (*Hohenwarthia*) *disparata*, Barcelona, p. 43, WESTERLUND, Verh. z.-b. Wien, xlii: *C. (Ferussacia) virginea*, Spain, WESTERLUND, An. Soc. Esp. xxi, p. 388: n. spp.
- Cryptazeca monodonta*, anatomy; BARROIS, Rev. Sci. Nat. Ouest, ii, pp. 330 & 331: figg.
- Glessula paviei*, n. sp., Indo-China, MORLET, J. de Conch. 1892, p. 321, fig.
- Leptinaria chathamensis*, n. sp., Galapagos Is., DALL, Naut. v, p. 98.
- Pseudoglessula*, n. sect. of *Stenogyra*, for *P. heteracra*, *subcrenata*, W. Africa, n. spp.; BETTGER, Nachr. mal. Ges. 1892, p. 202.
- Subulina cylindracea*, *jouberti*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 115, figg.; *S. paucispira*, Karewia, N. E. Africa, MARTENS, SB. nat. Fr. 1892, p. 177: n. spp.
- Stenogyra*. [See *Pseudoglessula*, n. sect.]
- Stenogyra* [or rather *Achatina*] *leroyi*, p. 110, *grandidieriana*, p. 111, E. Cent. Africa, BOURGUIGNAT, (37) 1889, figg.; *S. palus*, China, HEUDE (186) p. 151, fig.; *S. badia*, Congo, MARTENS, Conch. Mittheil. iii, 1889, p. 8, fig.; *S. cacuminata*, p. 85, South Africa, *chapmani*, p. 90, Ovampoland (Damaraland), MELVILL & PONSONBY, Ann. N. H. ix, fig.: n. spp.
- Zua sinensis*, n. sp., China; HEUDE (186), p. 151, fig.

#### HELICTERIDÆ and SUCCINEIDÆ.

- Amastra frosti*, n. sp., Sandwich Is.; ANCEY, Mém. Soc. Zool. v, p. 719.
- Carelia sinclairi*, n. sp., Sandwich Is.; ANCEY, Mém. Soc. Zool. v, p. 720.
- Succinea*: living in dry localities; LOENS, Nachr. mal. Ges. 1892, pp. 130 & 131. *S. simplex*, Pfeiff., jaw and radula; HEDLEY, P. Linn. Soc. N.S.W. vi, p. 691, figg.
- S. (Brachyspira) decussata*, Timor Laut Is., MOELLENDORFF, Nachr. mal. Ges. 1892, p. 99; *S. wolffi*, Galapagos Is., REIBISCH, SB. Ges. Isis, 1892, p. 28, fig.: n. spp.

#### VAGINULIDÆ and ONCIDIIDÆ.

- Notes on the *Vaginulidæ*; SIMROTH, Verh. Deutsch. Zool. Ges. i (1891), pp. 58-60.
- Atopos*, Simr.; notes on; JHERING, Nachr. mal. Ges. 1892, pp. 140-144: [with reply by SIMROTH, t. c. pp. 144-149]. *Atopos*, description of; SIMROTH, SB. Ges. Leipzig, xviii, p. 25. [Abs. of previous paper in Zool. Rec. 1891, *Moll.* p. 26, No. 400.]
- Prisma*, n. sect. for *Vaginula tourannensis*, Soul., *prismatica*, Tapp.-Canef., and *heyneimanni*, nom. nud.; SIMROTH, Z. wiss. Zool. lii, p. 596, fig.
- Vaginula carusi*, Singapore, *chavesin*, Mindanao, *sarasinorum*, Candy, *bocagei*, Moluccas, &c., *strubelli*, *newtoni*, *platei*, *marshalli*, Java,

- sumatrensis*, Sumatra, *graffi*, Celebes, *vivipara*, Saleijer Is., *weberi*, Sumatra, *cockerelli*, Java, *chilensis*, Chili, *jordani*, *paraguensis*, *taylori*, Paraguay, SIMROTH, SB. Ges. Leipzig, xviii, names given, pp. 85 & 86, descriptions, pp. 65-73, n. spp.
- Veronicella jamaicensis*, n. n. for *V. kraussii*, Fér., of Semper, p. 55, *V. virgata*, p. 96, *dissimilis*, p. 134, COCKERELL, J. Inst. Jamaica, i: alleged n. spp.
- Oncidiidæ*: on the structure and relationship of the; PLATE, Verh. Deutsch. Zool. Ges. ii, pp. 30-42.
- Ochidium lesiei*, n. sp., Galapagos Is., STEARNS, Naut. vi, p. 87.

## BASOMMATOPHORA.

## AURICULIDÆ.

- Alexia myosotis*, Drap., in Is. of Borkum [first record for Germany]; SCHNEIDER, Nachr. mal. Ges. 1892, p. 116.
- A. armoricana*, n. sp. [?], W. Coast of France; LOCARD, Échange, vii, 1891, p. 132.
- Anelasma*, n. sect. of *Traliopsis*, type †*T. lemoinei*, n. sp., COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv, 1889, p. 343: [altered to *Micrelasma*, HARRIS & BURROW, 1891].
- Semiauricula*, n. sect. of *Auricula*, type †*A. adversa*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv, 1889, p. 341.
- Tralia* (*Alexia*?) *minuscule*, Florida; DALL in SIMPSON, P. Davenport Ac. v, 1889, p. 69.

## LIMNÆIDÆ and PHYSIDÆ.

- Ancylus* in New Zealand; SUTER, J. de Conch. 1892, pp. 248-250.
- A. obliquus*, n. sp., Lincoln, Iowa, SHIMEK, Bull. Lab. Iowa, i, p. 214, fig.
- Latia lateralis*, Gould, phosphorescence in; SUTER, Mal. Bl. xi, p. 105.
- Limnæa limosina*, *conglobata*, *putriformis*, *leta*, *oppressa*, pp. 18 & 19, *strangulata*, p. 78, alleged new French species; LOCARD, Échange, viii.
- L. nyanseæ*, Victoria Nyanza, MARTENS, SB. nat. Fr. 1892, p. 16, n. sp.
- Physa heterostrophu*, Say, notes on; CRANDALL, Naut. vi, p. 20: fertility of; POTEAT; J. Elisha Mitchell Sci. Soc. viii, pp. 70-73.
- P. trigona*, Victoria Nyanza, MARTENS, SB. nat. Fr. 1892, p. 17; *P. (Bulinus) clathrata*, Spain, WESTERLUND, Nachr. mal. Ges. 1892, p. 197; *P. (Bulinus) clathrata*, Spain, WESTERLUND, An. Soc. Esp. xxi, p. 388: n. spp.
- Physopsis bloyeti*, n. sp., E. Cent. Africa; BOURGUIGNAT, (37) 1889, p. 160, fig.
- Planorbis riparius*, West., added to Brit. Fauna, from Lough Swilly; MILNE, Irish Nat. 1892, p. 192. [Subsequently withdrawn, = *P. nautilus*.]

*P. (Segmentina) emicans*, S. Africa, MELVILL & PONSONBY, Ann. N. H. x, p. 241, fig.; *P. victoriae*, Victoria Nyanza, SMITH, Ann. N. H. 1892, p. 383; † *P. borellii*, *verticellus*, p. 126, *sabljari*, p. 127, *ptycophorus*, *lazici*, p. 128, *marinkovici*, p. 129, Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii : n. sp.

#### SIPHONARIIDÆ and AMPHIBOLIDÆ.

*Amphibola*: anatomy; BOUVIER, Bull. Soc. Philom. iv, pp. 146-153.  
*Siphonaria* is an Opisthobranch; HALLER, Arb. z. Inst. Wien, x, pp. 71-100, figg., and should be placed next *Umbrella*.  
*S. gigas*, Less., anatomy, with figures; HALLER, Arb. z. Inst. Wien, x, pp. 71-100.

#### OPISTHOBRANCHIATA.

Vision in *Opisthobranchiata*; WILLEM, Arch. Biol. xii, pp. 123-149, figg.  
 On the anal eye of the larvæ of Opisthobranchs; MAZZARELLI, Rend. R. Ac. Lincei, 1892, i, p. 103.  
 Opisthobranchs obtained on the voyages of the 'Hirondelle'; BERGH (18).

#### NUDIBRANCHIATA.

Synopsis of families and classification; BERGH (17).—Organisation and phylogeny of the *Nudibranchiata*; PELSENEER, Bull. Soc. Mal. Belg. 1891 [1893], pp. lxxiii-lxxi.—*Nudibranchiata holohepatica porostomata*, synopsis; BERGH, Verh. z.-b. Wien, xlii (Abh.) pp. 1-16.—*Nudibranchiata sacoglossa*, are hermaphrodite; PELSENEER, Bull. Soc. Mal. Belg. 1891 [1893], p. lv.—Innervation of the cerata of some *Nudibranchiata*; HERDMAN & CLUBB, Q. J. Mier. Sci. xxxiii, pp. 541-558, figg.—Notes on the *Nudibranchiata* found at Puffin L.; HERDMAN, Tr. Liverp. Biol. Soc. v (1891) pp. 31-34.

#### ANTHOBRANCHIATA.

*Euplocamus atlanticus*, n. sp., Azores, BERGH, (18) p. 12, fig.  
*Jorunna johnstoni*, notes on structure and habits; GARSTANG, Conchologist, ii, pp. 49-52.

#### INFEROBRANCHIATA.

*Pleuroleura walteri*, n. sp., Spitzbergen, KRAUSE, Zool. JB. vi, Syst. p. 366, figg.  
*Pleurophyllidia loveni*, Bergh, in Britain; M'INTOSH, Conchologist, ii, p. 21 : addition occurrence; HERDMAN, t. c. p. 52; GREISBACH, t. c. p. 72.

## POLYBRANCHIATA.

- Cratena fructuosa*, n. sp., Saragossa Sea, BERGH, (18) p. 4, fig.  
*Eolididæ*, remarks on some means of defence amongst the ; HECHT, C.R. cxv, pp. 746-748.  
*Glaucus atlanticus*, Forster, note on specimens washed ashore on the coast of New South Wales; HEDLEY, P. Linn. Soc. N.S.W. vi, p. 576.  
*Hancockia eudactylota*, Gosse, observations on ; GAMBLE, Ann. N. H. ix, pp. 378-385, figg.  
*Lomanotus genei*, Verany, observations on ; GAMBLE, Ann. N. H. ix, pp. 378-385, figg.

## TECTIBRANCHIATA.

## (REPTANTIA.)

## ACTEONIDÆ.

- Acteon delicatus*, E. Coast U. S., DALL, Bull. Mus. C. Z. xviii (1889), p. 41, fig. ; *A. monterosatoi*, Azores, DAUTZENBERG, (107) 1889, p. 20, figs. : n. spp.  
*Bulimactæon*, n. sect. for † *Actæon bernayi*, n. sp., COSSMANN, Mem. Soc. Mal. Belg. 1891 (1892) p. 76.  
*Crenilabium*, n. sect. of *Actæon*, type † *A. aciculatus*, n. sp., COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 302.  
*Leucotina elongata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 52, fig.  
*Ovulactæon*, n. g., for *O. meekii*, n. sp., Caribbean ; DALL, Bull. Mus. C. Z. xviii (1889), pp. 42 & 43, fig.  
*Semiactæon*, n. sect. of *Actæon*, type † *Tornatella sphaericula*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 304.

## TORNATINIDÆ and SCAPHANDRIDÆ.

- Acrotrema*, n. sect. of *Cylichna*, type † *Bulla cylindroides*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 313.  
*Cylichna verrillii*, Coast of N. Carolina, DALL, Bull. Mus. C. Z. xviii (1889), p. 54 ; *C. richardi, chevreuxi*, Azores, DAUTZENBERG, (107) 1889, p. 23, figg. : n. spp.  
*Tornatina mariei*, p. 21, *protracta*, p. 22, Azores, DAUTZENBERG (107) 1889, figg. ; *T. (Coleophysis) perplicatus*, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 45 : n. spp.  
*Utriculus (vortex var. ?) domitus*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 47, fig.  
*Volvula bushii, aspinosa*, n. spp., E. Coast U. S., DALL, Bull. Mus. C. Z. xviii (1889), p. 51.

## BULLIDÆ, RINGICULIDÆ, GASTROPTERIDÆ, and PHYLINIDÆ.

- Bulla krebsii*, Guadelupe, p. 56, *clausa*, Florida, p. 57, DALL, Bull. Mus. C. Z. xviii (1889) ; *B. guernei*, Azores, DAUTZENBERG, (107) 1889, p. 24, figg. : n. spp.

- Gasteropteron meckelii*, KOSSE, notes on ; SMITH, P. N. H. Soc. Glasg. iii, p. 258.  
 † *Gilbertia* : notes on ; VINCENT, Bull. Soc. Mal. Belg. 1891 [1893] p. lii; COSSMANN, *t. c.* p. lxiv.  
*Philine infundibulum*, p. 57, *planata*, p. 58, n. spp., E. Coast U. S., and Caribbean, DALL, Bull. Mus. C. Z. xviii (1889).

### PLEUROBRANCHIDÆ and UMBRELLIDÆ.

- Pleurobranchillus*, n. g., p. 27, with *P. morosus*, n. sp., p. 28, Atlantic ; BERGH, (18) fig.  
*Umbraculum (Hyalopatina) rushii*, n. sp., Bahamas, DALL, Bull. Mus. C. Z. xviii (1889), p. 61.

---

*Siphonaria* is placed amongst *Opisthobranchiata*, next to *Umbrella*, by HALLER, Arb. z. Inst. Wien, x, pp. 71-100.

### (NATANTIA or PTEROPODA.)

- Muscular system of *Pteropoda* ; WACKWITZ, Zool. Beitr. iii, p. 129.—Notes on the embryology of the *Pteropoda*, Rev. Sci. Nat. St. Pétersb. 1891, p. 148 [Russian].—Catalogue of the *Pteropoda* of Australia and Tasmania ; BRAZIER (44).  
 † *Conularia baini*, n. sp., Palæozoic of Bolivia, ULRICH, (412) p. 36, fig.  
*Hyolithidæ* : Palæozoic *Hyolithidæ* of Bohemia revised ; NOVÁK, Abh. Böhm. Ges. iv, No. 6, with *Ceratotheca*, n. g., type *Hyolithes aduncus*, Barr., and 4 new species. *Bactrotheca*, n. g. for *B. deleta*, n. sp., and *Hyolithes teres*, Barr. *Pterygotheca*, n. g. for *P. barraudei*, n. sp., and *Orthotheca*, n. g. & spp.  
 † *Hyolithes schencki*, n. sp., Palæozoic, Bolivia, ULRICH, (412) p. 37, fig.

[NUCLEOBRANCHIATA : see PROSOBRANCHIATA.]

### PROSOBRANCHIATA.

- Vision in the *Prosobranchiata* ; WILLEM, Arch. Biol. xii, pp. 123-149, figg.—Observations on the nephridia ; ERLANGER, Q. J. Micr. Sci. xxxiii, pp. 587-623, figg.

### NUCLEOBRANCHIATA.

- The *Heteropoda* are streptoneurous and are simply Prosobranchs whose exterior aspect has become modified by pelagic life ; PELSENEER, C.R. cxiv, pp. 775-777.—Muscular system of *Heteropoda* ; WACKWITZ, Zool. Beitr. iii, p. 129.

## PECTINIBRANCHIATA.

## TOXOGLOSSA.

## TEREBRIDÆ and CONIDÆ.

- Hemiconus*, n. sect. of *Conus*, type †*C. stromboides*, Lamk. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 230.  
*Terebra* (*Acus*?) *benthalis*, p. 65, Havana, *nassula*, *limatula*, p. 66, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889).

## PLEUROTOMIDÆ.

- Apiotoma*, n. sect. of *Pleurotoma*, type †*P. pirulata*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 259.  
*Bela grimaldi*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 26, figg.  
*Borsonia* (*Cordieria*) *rouaultii*, n. sp., Barbadoes, DALL, Bull. Mus. C. Z. xviii (1889), p. 98, fig.  
*Clathurella watsoni*, Azores, DAUTZENBERG, (107) 1889, p. 29, figg.; *C. bourguignati*, *servaini* [? new], W. Coast France, LOCARD, Échange, vii (1891), pp. 5 & 6 : n. spp.  
*Defrancia ponsonbyi*, n. sp., Port Elizabeth, SOWERBY, (378) p. 7, fig.  
*Drillia tryonii*, *albicoma*, Caribbean, p. 83, *alesidota*, hab.?, p. 85, *eucosmia*, Grenada, *haliostrephes*, Gulf of Mexico, p. 86, *acestra*, Havana, p. 87, *acrybia*, Florida, *tristichia*, Gulf of Mexico, p. 88, *pagodula*, Caribbean, p. 90, *premorra*, Gulf of Mexico, p. 93, *apynota*, p. 96, *moseri*, p. 97, E. Coast U. S., DALL, Bull. Mus. C. Z. xviii (1889), figg., n. spp.  
*Eopleurotoma*, n. sect. of *Pleurotoma*, type †*P. multicostata*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 265.  
*Epalcis*, n. sect. of *Dolicotoma*, type †*Pleurotoma crenulata*, L. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 250.  
*Genota viabrunnea*, Caribbean, DALL, Bull. Mus. C. Z. xviii, p. 80, fig.  
*Hemipleurotoma*, n. sect. of *Pleurotoma*, type †*P. archimedis*, Bell. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 260.  
*Mangilia* (*Cythara*) *bartlettii*, *cymella*, Caribbean, p. 101, (*Daphnella*) *corbicula*, *reticulosa*, Barbadoes, &c., p. 103, *pompholyx*, Barbadoes, p. 104, *retifera*, p. 105, *calyx*, p. 107, E. Coast U. S., *sofia*, Guadelupe, p. 107, (*Glyphostoma*) *phalera*, Trinidad, p. 111, (*Mangilia*) *halitropis*, Santa Cruz, p. 114, *scipio*, Caribbean, p. 117, *toreumata*, Dominica, p. 118, (*Pleurotomella*) *edgariana*, Curaçao, p. 121, *catasarca*, Caribbean, p. 124, *hadria*, E. Coast U. S. p. 125, DALL, Bull. Mus. C. Z. xviii (1889), figg., n. spp.  
*Mitromorpha biplicata*, Barbadoes, DALL, Bull. Mus. C. Z. xviii (1889), p. 165, fig. ; *M. volva*, Port Elizabeth, SOWERBY, (378) p. 7, fig. : n. spp.  
*Oxyacrum*, n. sect. of *Pleurotoma*, type †*P. oblitterata*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 270.

- Pleurotoma periscelida*, p. 74, (*Leucosyrinx*) *tenoceras*, p. 76, E. Coast U. S., (*Ancistrotyrinx*) *radiata*, p. 78, Caribbean, DALL, Bull. Mus. C. Z. xviii, figg.; *P. (Mangilia?) simpsoni*, Florida, DALL in SIMPSON, P. Davenport Ac. v (1887), p. 54; †*P. haeringensis*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 28, fig. : n. spp.
- Systemope*, n. sect. of *Raphitoma*, type †*R. polycolpa*, n. sp. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 289.

## CANCELLARIIDÆ.

- Admetula*, n. sect. of *Cancellaria*, type †*C. evulsa* ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 224.
- Benthobia*, n. g., for *B. tryonii*, n. sp., N. Carolina ; DALL, Bull. Mus. C. Z. xviii (1889), pp. 131 & 132, fig.
- Cancellaria (Trigonostoma) agassizii*, E. Coast U. S., p. 130, *microscopica*, Caribbean, p. 131, DALL, Bull. Mus. C. Z. xviii (1889), figg., n. spp.
- Plesiocerithium*, n. g., type †*Cancellaria magloirei*, Mell. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 228.
- Sceltella*, n. sect. of *Cancellaria*, type †*C. quantula*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 222.

## RHACHIGLOSSA.

## OLIVIDÆ and MARGINELLIDÆ.

- Ancilla pura*, n. sp., Port Elizabeth, SOWERBY, (378) p. 17, fig.
- † ? *Ancillaria olivaeformis*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 26, fig.
- Marginella cassis*, p. 137, fig., Gulf of Mexico, *styria*, Sombrero Is., p. 140, DALL, Bull. Mus. C. Z. xviii ; *M. electrina*, Port Elizabeth, SOWERBY, (378) p. 21, fig. : n. spp.

## VOLUTIDÆ and MITRIDÆ.

- Mitra aquitanica*, found on the W. Coast of France ; LOCARD, Échange, viii, p. 101.
- M. (Costellaria?) styria*, p. 159, fig., *rushii*, p. 160, *triphonia*, p. 161, Caribbean, (*Thalia?*) *tortricula*, p. 162, Havana, (*Conomitra*) *blakeana*, Yucatan Strait, p. 163, DALL, Bull. Mus. C. Z. xviii (1889), figg. ; *M. fultoni*, Lr. California, SMITH, Ann. N. H. ix, p. 256, fig. : n. spp.
- Scaphella (Aurinia) robusta*, p. 153, *gouldiana* [with its anatomy], p. 154, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg. ; *S. (Voluta) arnheimi*, Monterey Bay, Calif., RIVERS, Naut. v, p. 111 : n. spp.
- Voluta verconis*, S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 125, fig. ; †*V. stromboides*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 25, fig. : n. spp.

## FASCIOLARIIDÆ and TURBINELLIDÆ.

- Fusciolaria (Mesorhythis) meekiana*, n. sp., Gulf of Mexico, DALL, Bull. Mus. C. Z. xviii (1889), p. 172, fig.
- Fusus timessus*, p. 166, *eucosmius*, p. 167, *halistreptus*, *benthalis*, p. 168, *amiantus*, *apynotus*, p. 169, *alcimus*, p. 170, *ceramidus*, *amphiurgus*, p. 171, DALL, Bull. Mus. C. Z. xviii (1889), figg.; *F. azoricus*, Azores, DAUTZENBERG, (107) 1889, p. 32, figg.; †*F. mittereri*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 23, fig. : n. spp.
- †*Glyptostyla*, n. g. for *G. panamensis*, n. sp., Tertiary of Isthmus of Darien; DALL, Tr. Wagner Inst. iii, pp. 232 & 233, figg.
- Latirulus*, n. sect. of *Latirus*, type †*Fusus subaffinis*, d'Orb.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 169.
- Pseudolatirus*, n. sect. of *Streptochetus*, type †*S. mellerillei*, n. sp.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 170.
- Turbinella truncata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 17, fig.

## BUCCINIDÆ.

- Chrysodomus (Sipho) rushii*, Florida, *C. (?) globulus*, Little Bahama Bank, DALL, Bull. Mus. C. Z. xviii, p. 175, fig.; *C. (Sipho) stonei*, New Jersey, PILSBRY, P. Ac. Philad. 1892, p. 328, figg. : n. spp.
- Columbellisipho*, n. sect. of *Sipho*, type †*Fusus hordeolus*, Lamk.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 146.
- Cominella semisulcata*, *C. (?) sulcata*, n. spp., Port Elizabeth, SOWERBY, (378) pp. 10 & 11, figg.
- Coptochetus*, n. sect. of *Siphonalia*, type †*Fusus scalaroides*, Lamk.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 153.
- Endopachychilus*, n. sect. of *Tritonidea*, type †*Purpura crassilabrum*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 136.
- Hindsia grimaldi*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 33, figg.
- Liomesus (?) stimpsoni*, n. sp., Carolina, DALL, Bull. Mus. C. Z. xviii (1889), p. 176, fig.
- Nassaria bushii*, *columbellata*, p. 182, *grayi*, p. 183, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.
- Neptunea nicolloni*, Loc., W. Coast of France; LOCARD, Échange, vii (1891), p. 34.
- Pisania scholvieni*, n. sp., Njaning, Senegambia, ROLLE, Nachr. mal. Ges. 1892, p. 51.
- Polia reticulata*, *azona*, n. spp., Kalymos Is., BËTTGER, Ber. Senck. Ges. 1892, p. 153.
- Tortisipho*, n. sect. of *Sipho*, type †*Fusus jucundus*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 147.
- Volutharpa salmiana*, n. sp., Japan, ROLLE, Nachr. mal. Ges. 1892, p. 52.

## NASSIDÆ and COLUMBELLIDÆ.

- Nassa* : Gould's types not lost; MARSHALL, Naut. vi, p. 47.
- Nassa scissurata*, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 185;
- N. crawfordi*, Port Elizabeth, SOWERBY, (378) p. 13, fig. : n. spp.

*Columbellidae*: monograph by KOBELT, pp. 1-128, pls. i-xviii; MARTINI & CHEMNITZ (246).

*Columbella*: Gould's types not lost; MARSHALL, Naut. vi, p. 47.

*C. (Astyris) profunda*, Havana, DALL, Bull. Mus. C. Z. xviii (1889), p. 192, fig.; *C. (Amphissa) bicolor*, San Pedro Bay, DALL in WILLIAMSON, P. U. S. Nat. Mus. xv, p. 213, fig.; *C. (Mitrella) unisulcata*, p. 119, Tasmania, KOBELT in MARTINI & CHEMNITZ (246); *C. capensis, algoensis*, South Africa, SOWERBY, (378) p. 22, figg.; *C. (Nitidella) incerta*, Galapagos Is., STEARNS, Naut. vi, p. 88; *C. cominellaformis*, S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 126, fig. : n. spp.

### MURICIDÆ and CORALLIOPHILIDÆ.

*Coralliophila lactuca*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 220, fig.

*Eupleura stimpsonii*, n. sp., Barbadoes, DALL, Bull. Mus. C. Z. xviii (1889), p. 204.

*Magilus*, Montf., revision of the genus; BAKER, P. Rochester Acad. ii, pp. 37-40, fig.

*Murex (Phyllonotus) hystricinus*, Caribbean, p. 200, (*Pteronotus*) *phaneus*, Florida, p. 201, *tristichus*, Cuba, p. 202, (*Muricidea*) *philippiana*, Caribbean, p. 213, DALL, Bull. Mus. C. Z. xviii (1889), figg.; *M. (Ocinebra ?) crawfordi, babingtoni*, South Africa, SOWERBY, (378) p. 2, figg.; *M. guembeli*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 24, fig. : n. spp.

*Trophon (Aspella) scalarioides*, anatomy; DALL, Bull. Mus. C. Z. xviii (1889), p. 209.

*T. (Boreotrophon) lacunellus*, p. 205, *actinophorus*, p. 206, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figs.; *T. dabneyi*, p. 36, *droueti*, p. 37, Azores, DAUTZENBERG, (107) 1889, figg. : n. spp.

### TÆNIOGLOSSA.

#### TRITONIDÆ, CASSIDIDÆ, DOLIIDÆ, and CYPRÆIDÆ.

*Amphiperas (Simnia) piragua*, p. 235, *aureocincta*, p. 236, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889).

† *Cassidaria haeringensis*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 21, fig.

† *Cassis fuchsii*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 21, fig.

*Cypræa chrysalis*, Kiener, and *C. amphithales*, Melv., notes on; MELVILLE, Journ. Conch. vii, pp. 120-123.

*Dolium (Eudolium) verrillii*, n. sp., Grenada, DALL, Bull. Mus. C. Z. xviii (1889), p. 233, fig.

*Lampusia ? pharcida*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 227, fig.

- Monocirsus*, n. sect. of *Triton*, type †*T. carinulatus*, n. sp., COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 112.
- Ovula carnea*, Poiret : distribution; FISCHER, J. de Conch. 1892, pp. 77 & 78; WATSON, t. c. p. 208.
- Pyrula* : review of the genus; SOWERBY, Conchologist, ii, pp. 73-75.
- P. filosa*, n. sp., Hong Kong, SOWERBY, Conchologist, ii, p. 74.
- †*Tritonium haeringense*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 22, fig.

## STROMBIDÆ and APORRHAIIDÆ.

- †*Alaria acuta*, n. sp., Neocomian of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xliv, p. 19, fig.
- Amplogladius*, n. sect. of *Gladius*, type †*Rostellaria athleta*, d'Orb.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 90.
- Ectinochilus*, n. sect. of *Rimella*, type †*Strombus canalis*, Lam.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 87.
- †*Rostellaria haueri*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 18, fig.
- Semiterebellum*, n. sect. of *Gladius*, type †*Rostellaria marceauxi*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 91.
- Wateletia*, n. sect. of *Gladius*, type †*Rostellaria geoffroyi*, Wat.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 90.

## CERITHIIDÆ, PLANAXIDÆ, and TRICHOTROPIDIDÆ.

- Cerithiidæ* : inner palatal folds of fossil forms; OPPENHEIM, Z. geol. Ges. xliv, pp. 439-446.
- Aneurychilus*, n. sect. of *Sandbergeria*, type †*Cerithium secale*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 34.
- Cerithiopsis matara, martensii*, p. 255, *aconium*, p. 256, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), fig.
- Cerithium foveolatum*, n. sp., Port Elizabeth, SOWERBY, (378) p. 36, fig.
- Exechestoma*, n. sect. of *Potamides*, type †*Cerithium angulosum*, Lamk.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 71.
- Granulolabium*, n. sect. of *Potamides*, type †*Cerithium plicatum*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 76.
- Mellevillia*, n. sect. of *Fastigiella*, type †*Cerithium gibbosulum*, Mell.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 36.
- Orthochilus*, n. sect. of *Planaxis*, type †*Cerithium bezanconi*, De R.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 7.
- †*Pseudoscalites*, n. g. for *P. elegantissimus* (Klipst MS.), n. sp.; KITTL, Ann. Hofmuseum Wien, vii, p. 66, fig.
- Semivertagus*, n. sect. of *Cerithium*, type *C. vertagus*, Lin.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 28.
- Tiarella*, n. sect. of *Lovenella*, type †*Cerithium pupina*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 50. [Altered to *Cyrbasia*, Harris & Burrows, 1891.]

- Trachyschœnium*, n. sect. of *Lovenella*, type †*Cerithium alveolatum*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 47.  
*Triforis* (*Inella*) *sarissa*, Barbadoes, p. 247, (*Sychar*) *samaneæ*, San Domingo, p. 248, n. spp., DALL, Bull. Mus. C. Z. xviii (1889).  
*Tylochilus*, n. sect. of *Potamides*, type †*Cerithium tuba*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iv (1889), p. 76.

## VERMETIDÆ and TURRITELLIDÆ.

- Acrocoelum*, n. sect. of *Mathildia*, type †*M. bouryi*, n. sp., COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 315.  
*Mathilda barbadense*, p. 266, fig., Barbadoes, *rushii*, *scitula*, p. 267, n. spp., E. Coast U. S., DALL, Bull. Mus. C. Z. xviii (1889).  
†*Siliquaria* (?) *triadica*, n. sp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, p. 56, fig.  
*Thylacodes medusæ*, n. sp., Japan, MACGEORGE, Le Nat. 1892, p. 123, fig.  
*Turritella* (*Torcula*) *acropora*, Transatlantic and Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 264; *T. maltzani*, Gorée, Senegambia, ROLLE, Nachr. mal. Ges. 1892, p. 51; †*T. paedopsis*, *subtilestriata*, *fasciata*, p. 55, *abbatis*, p. 56, Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg. : n. spp.  
*Vermetidæ* of the Mediterranean, with *Vermetus spirintortus*, p. 22, *simulans*, p. 25, *serpuloides*, p. 41, n. spp.; MONTEROSATO, Bull. Soc. Mal. Ital. xvii.

## PSEUDOMELANIIDÆ and MELANIIDÆ.

- †*Angularia*, n. g., with *A. marginata*, n. sp., Alpine Trias; KOKEN, JB. Mineral. 1892, ii, p. 32; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 198, fig.  
†*Chemnitzia manzavini*, Trias of Balia, Asia Minor, BITTNER, JB. geol. Reichsanst. xlii, p. 87, fig.; †*C. longiscata*, *solida*, Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 199, fig. : n. spp.  
†*Hypsipleura*, n. g., with *H. cathedralis*, n. sp., Alpine Trias; KOKEN, JB. Mineral. 1892, ii, p. 32; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 201, fig.  
†*Katosira*, n. g., with *K. fragilis*, *abbreviata*, n. spp., Alpine Trias; KOKEN, JB. Mineral. 1892, ii, p. 31; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 205, figg.  
†*Loxonema pyrgula*, *lineatum*, n. spp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 202, figg.  
*Melania verrii*, De Stef., varieties; FORESTI, Bull. Soc. Mal. Ital. xvi, p. 74, figg.  
*M. jacquetiana*, *joretiana*, *terminalis*, *dolium*, *M. (?) rotundata*, p. 166, China, HEUDE (186), figg.; *M. tornata*, Albert Nyansa, MARTENS, SB. nat. Fr. 1892, p. 181; *M. ten-katei*, Soemba, SCHEPMAN, Notes Leyd. Mus. xiv, p. 156, fig. : n. spp.

- Melaniidae* : inner palatal folds of fossil forms ; OPPENHEIM, Z. geol. Ges. xliv, pp. 439-446.
- Melanopsis harpa*, Spain, WESTERLUND, Nachr. mal. Ges. 1892, p. 199 ; *M. harpa* [= *costata* var.], Spain, WESTERLUND, An. Soc. Esp. xxi, p. 389 ; †*M. pentagona*, p. 138, *stricturata*, p. 139, *bogdanowi*, p. 142, *blanchardi*, p. 143, Tertiary of Markuševac (Croatia), BRUSINA, Glasnik. Naravosl. Druzt. vii : n. spp.
- †*Melanoptychia paradoxa*, p. 144, *varinodosa*, p. 145, n. spp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik. Naravosl. Druzt. vii.
- Potamanax*, n. subg. of *Pachychilus*, for *P. rovirosai*, n. sp., Tabasco, Mexico ; PILSBRY, P. Ac. Philad. 1892, p. 341, fig.
- Pachychilus* : anatomy ; FISCHER & CROSSE, (133) pp. 322-327.
- P. (polygonatus*, Lea, ? var.) *rovirosai*, Mexico, PILSBRY, P. Ac. Philad. 1892, p. 153, fig. : possible n. sp.
- †*Pustularia*, n. g. for *Chemnitzia alpina*, Eichw., Alpine Trias ; KOKEN, JB. Mineral. 1892, ii, p. 32 ; WOEHRMANN & KOKEN, Z. geol. Ges. xliv, p. 203, fig.
- Plotia leroyi*, p. 185, *bloyeti*, p. 186, n.spp., E. Centr. Africa, BOURGUIGNAT, (37) 1889.
- Semisinus* : anatomy ; FISCHER & CROSSE, (133) pp. 315-317.
- †*Undularia*, n. g. for *Turritella carinata*, Münst, Alpine Trias ; KOKEN, JB. Mineral. 1892, ii, p. 31 ; WOEHRMANN & KOKEN, Z. geol. Ges. xliv, p. 200, fig.
- †*Zygopleura*, n. g., with *Z. spinosa*, n. sp., and *Coronaria*, n. sect., with *Z. coronata*, n. sp., Alpine Trias ; KOKEN, JB. Mineral. 1892, ii, p. 30 ; WOEHRMANN & KOKEN, Z. geol. Ges. xliv, pp. 203-5, figg.

## LITTORINIDÆ and FOSSARIDÆ.

- Cirsope*, n. sect. of *Lacuna*, type †*L. marginata*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 275.
- Cithna jeffreysi*, n. sp., Azores ; DAUTZENBERG, (107) 1889, p. 44, figg.
- Entomope*, n. sect. of *Lacuna*, type †*Litiopa klipsteini*, Cossm. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 273.
- Fossarus (Gottoina) bella, compacta*, n. spp., Caribbean ; DALL, Bull. Mus. C. Z. xviii (1889), pp. 272 & 273, figg.
- †*Lacuna karreri*, *L.(?) incrassata*, n. spp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, p. 97, figg.
- Littorina rudis*, Maton, monstrosities ; SYKES, P. Dorset Field Club, xiii, pp. 191-198, figg.
- L. (Tectarius) galapagensis*, p. 87, Galapagos Is., *atyphus*, p. 88, Manta, Ecuador, n. spp., STEARNS, Naut. vi.
- Medioriopsis*, n. sect. of *Lacuna*, type †*L. effusa*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 270.
- Prosthenodon*, n. sect. of *Littorina*, type †*L. mondonga*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 261.

- † *Pseudofossarus*, n. n., = *Fossarus*, Laube, non Philippi; KOKEN, JB. Mineral. 1892, ii, p. 27; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 191, fig.
- † *Purpurina vaccki*, n. sp., Trias of St. Cassian; KITTL, Ann. Hofmuseum Wien, vii, p. 64, fig.
- † *Tretospira*, n. g., allied to *Purpurina*, with *T. multistriata*, n. sp., Alpine Trias; KOKEN, JB. Mineral. 1892, ii, p. 32; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, pp. 196 & 197, fig.

## SOLARIIDÆ.

- Fluxina discula*, n. sp., Dominica; DALL, Bull. Mus. C. Z. xviii (1889), p. 273, figg.
- Homalogyra ornata*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 46, figg.
- Solarium peracutum, sigsbeeii*, n. spp., Caribbean; DALL, Bull. Mus. C. Z. xviii (1889), p. 275, figg.

## JEFFREYSIIDÆ, LITIOPIDÆ, and RISSOIDÆ.

- Alvania rufopunctata*, Kalymos Is., BETTGER, Ber. Senck. Ges. 1892, p. 158; *A. poucheti*, p. 49, *lamellata*, p. 50, Azores, DAUTZENBERG, (107) 1889, figg. : n. spp.
- Benthonella*, n. g. for *B. gaza, fischeri, nisonis*, Caribbean; DALL, Bull. Mus. C. Z. xviii (1889), pp. 282-285.
- † *Chevallieria*, n. g., type † *C. labrosa*, n. sp., Eocene of Paris, COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 244, fig.
- Diala infrasulcata, dubia*, n. spp., Port Elizabeth, SOWERBY, (378) p. 27, figg.
- Hemibia sublevis*, p. 168, *carectorum, luteola, crassa, longiscuta, costulata*, p. 169, n. spp., China, HEUDE, (186) figg.
- Jeffreysia atlantica*, n. sp., St. Helena, SMITH, Ann. N. H. 1892, p. 130.
- Onoba moreleti*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 52, figg.
- Rissoa*: notes on; TOMLIN, Brit. Nat. 1892, pp. 72-74, 155 & 156, 179 & 180, 257 & 258.
- R. precipitata*, Yucatan Strait, DALL, Bull. Mus. C. Z. xviii (1889), p. 279, fig.; *R. guernei*, p. 47, *obesula*, p. 48, Azores, DAUTZENBERG, (107) 1889, figg.; *R. (Alvania) argentea, (Cingula) capensis*, Port Elizabeth, SOWERBY, (378) p. 38, figg.; † *R. tirolensis*, Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 207, fig. : n. spp.
- Setia roseotincta*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 53, figg.

## HYDROBIIDÆ and PALUDINIDÆ.

- † *Acrophylictis*, n. g., type † *Bithinia eugenei*, Desh., Eocene of Paris; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 233, fig.
- † *Baglivia*, n. g. for *B. rugosula*, p. 146, *goniogyra, strongylogyra*, p. 147, *streptogyra, ambigua*, p. 148, n. spp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii.
- Belgrandia coutagnei*, n. sp., Avignon, LOCARD, Échange, viii, p. 3.

- Bythynella dunkeri*, Frauenf., remarks on; SIMROTH, Mal. Bl. xi, pp. 106 & 107, figg.
- B. bosniensis*, Bosnia, CLESSIN, Mal. Bl. xi, p. 120, fig.; *B. depereti*, *deformata*, *lartetiaformis*, *ventricosa*, *anglesiana*, (*Lartetia*) *pontmartiniana*, *boulayi*, *chobauti*, *chantrei*, *gabilloti*, *duhameli*, *collieri*, *cureti*, (*Moitessieria*) *collieri*, Avignon, NICOLAS, Ann. Soc. Agric. Lyon, iv, pp. 34-48, figg.; *B. scitula*, Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii, p. 154 : n. spp.
- Bythinia tentaculata*, development; ERLANGER, MT. z. Stat. Neap. x, pp. 376-407, fig.
- B. delavayana*, p. 170, *toucheana*, *chinensis*, *scalaris*, p. 171, *spiralis*, p. 172, n. spp., China, HEUDE, (186) figg.
- † *Caspia dybowskii*, p. 155, *obtusa*, *acicula*, p. 156, *incerta*, p. 157, n. spp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii.
- Hydrobia texana*, Texas, PILSBRY, P. Davenport Ac. v (1887), p. 33; + *H. vidovici*, *taediosa*, p. 149, *atropida*, p. 151, *monotropida*, *ditropida*, p. 152, *polytropida*, p. 153, Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii : n. spp.
- Hypsobia*, n. g. for *H. humida*, China; HEUDE, (186) p. 173, figg.
- Lacunopsis dugasti*, n. sp., Laos, MORLET, J. de Conch. 1892, p. 84.
- † *Micromelania sulcata*, *lineolata*, p. 161, *gracilis*, p. 162, n. spp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii.
- Paludestrina jenkinsi*, Smith, and *ventrosa*, Mont., difference between the radulae; WOODWARD, Ann. N. H. ix, pp. 376-378, figg.
- Paludina*: development of the liver; H. FISCHER, CR. Soc. Biol. iii, p. 644.
- Paludina diminuta*, *leucostoma*, *fluminis*, *catayensis*, p. 175, *ventricosa*, *aubryana*, *dispiralis*, p. 175, *purificata*, *fantozatina*, p. 175, *lapillorum*, *demolita*, *deformis*, p. 177, China, HEUDE, (186), figg.; *P. constricta*, Victoria Nyanza, MARTENS, Conch. Mittheil. iii (1889), p. 16, fig.; *P. laosiensis*, Indo China, MORLET, J. de Conch. 1892, p. 85 : n. spp. [See also *infra*, *Vivipara*.]
- Polycirsus*, n. sect. of *Hydrobia*, type + *Bythinia tuba*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 219.
- † *Prososthenia croatica*, n. sp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii, p. 163.
- Pseudumnicola euboica*, Euböa, p. 45, *nebrodensis* [= *vestita*, Benoit, 1882], Sicily, p. 50, n. spp., KOBELT in ROSSMAESSLER, (322) v, figg.
- Pyrgulopsis scalariformis*, Wolf, note on; SHIMEK, Bull. Lab. Iowa, ii, p. 168.
- Rivularia*, n. g., for *R. glandina*, *subelliptica*, p. 178, *elongata*, *ovum*, *globosa*, p. 179, China; HEUDE (186), figg.
- Stenothyra toucheana*, China, HEUDE, (186) p. 173, figg., n. sp.
- Vivipara phthinotropis*, p. 17, *trochlearis*, and *costulata*, p. 18, Victoria Nyanza, MARTENS, SB. nat. Fr. 1892; *V. victoriæ*, *jucundus*, *cepoides*, Victoria Nyanza, SMITH, Ann. N. H. x, pp. 124 & 125, figg. : n. spp. [See also *suprà*, *Paludina*.]

## VALVATIDÆ, AMPULLARIIDÆ, and ASSIMINEIDÆ.

- Ampullaria brohardi*, Cambodia, GRANGER, Le Nat. 1892, p. 97, fig.;  
*A. nyanzæ, gordonii*, Victoria Nyanza, SMITH, Ann. N. H. x,  
 p. 382 : n. spp.  
*Assiminea littorina*, Delle Chiaie, in Malta; CARUANA-GATTO, Med. Nat.  
 ii, p. 245.  
*Chlorostracia massiei*, n. sp., Laos, MORLET, J. de Conch. 1892, p. 84.  
*Lyogyrrus*, notes on, and *L. dalli*, n. sp., Florida; PILSBRY, Naut. vi,  
 pp. 61 & 62.  
*Meladomus* [= *Lanistes*] *bloyeti, nitidissimus*, p. 171, *deguerryanus*, p. 175,  
*alexandri*, p. 177, n. spp., E. Centr. Africa, BOURGUIGNAT, (37) 1889,  
 figg.  
† *Orygoceras corniculum*, p. 169, *filocinctum, cultratum, cnemopsis*, p. 171,  
 n. spp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl.  
 Druzt. vii.  
*Valvata revoili*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 189, fig.;  
 † *V. cyclostrema, leptonema*, Tertiary of Markuševac (Croatia),  
 BRUSINA, Glasnik Naravosl. Druzt. vii, p. 167 : n. spp.

## CYCLOPHORIDÆ.

- Alycoeus expansus, dolichodeiros*, p. 129, *dolomiticus, monadicus*, p. 130,  
 n. spp., China, HEUDE (186), figg.  
*Aperostoma (Amphicyclotus) goldfussi*, n. sp., Honduras, BËTTGER, Nachr.  
 mal. Ges. 1892, p. 203.  
*Cyclophorus zebrinus*, Bens., on a variety, and on the periostracum of;  
 SMITH, Conchologist, ii. p. 6.  
*C. orbigny*, E. Bolivia, ANCEY, Journ. Conch. vii, p. 94; *C. elatior*,  
*papillaris*, Butumbi, N. E. Africa, MARTENS, SB. nat. Fr. 1892,  
 p. 180; *C. preussi*, Cameroons, MARTENS, SB. nat. Fr. 1892, p. 183;  
*C. tornatus*, Tonkin, MORLET, J. de Conch. xxxii, p. 322, fig.; † *C.*  
*matheroni*, Upper Rognacian of Les Baux, NICOLAS, C.R. Ass. Fr. Sci.  
 1891, ii, p. 452, fig. : n. spp.  
*Cyclotus erroneus*, China, HEUDE, (186) p. 128, figg.; † *C. nicolasis*, Upper  
 Rognacian of Les Baux, NICOLAS, C.R. Ass. Fr. Sci. 1891, ii, p. 453,  
 fig.; *C. soembaensis*, Soemba, SCHEPMAN, Notes Leyd. Mus. xiv,  
 p. 158, fig.; *C. filo-liratus*, Bogota, SOWERBY, P. Z. S. 1892, p. 298,  
 fig. : n. spp.  
*Diplommattina decorosa*, p. 510, *garoensis, elongata*, p. 511, *chennelli, butleri*,  
 p. 512, *ambigua, commutata, dohertyi*, p. 513, *thomsoni, nengloensis*,  
*distincta*, p. 514, *khunhoensis, lapillus, compacta*, p. 515, *unicrenata*,  
*japroensis, animula*, p. 516, *subrubella, subtilis, delicata*, p. 517, *muni-*  
*purensis, venustula, domuncula*, p. 518, *succinea, concinna, gibberosa*,  
 p. 519, GODWIN-AUSTEN, P. Z. S. 1892; *D. egregia*, Queensland,  
 HEDLEY & MUSSON, P. Linn. Soc. N.S.W. vi, p. 561, fig.; *D. inter-*  
*media, abbreviata, minuscula*, China, HEUDE, (186) p. 131, figg. :  
 n. spp.

- Geothauma*, n. g., type *Opisthostoma grandispinosum*, Godwin-Austen ;  
 CROSSE, J. de Conch. 1892, pp. 282-284, fig.
- Hedleya*, n. g. for *H. macleayi*, n. sp., allied to *Pupina*? Solomon Is. ;  
 COX, P. Linn. Soc. N.S.W. vi, p. 568, figg.
- Hungerfordia* : notes on ; CROSSE, J. de Conch. 1892, pp. 280-282, fig.
- Leptopoma halmahericum, crenilabre*, n. spp., Halmahera [Moluccas],  
 STRUBELL, Nachr. mal. Ges. 1892, pp. 48 & 49.
- Maizania*, n. g. for *M. olivacea*, n. sp., E. Centr. Africa ; BOURGUIGNAT,  
 (37) 1889, p. 149, fig.
- † *Megalomastoma julliani*, n. sp., Upper Rognacian of Les Baux ;  
 NICOLAS, C.R. Ass. Fr. Sci. 1891, ii, p. 454, fig.
- Opisthoporus hyperborealis*, n. sp., China, HEUDE, (186) p. 128, figg.
- Paxillus borealis*, n. sp., China, HEUDE, (186) p. 131, fig.
- Pomatias (Auritus) eirciticus*, n. sp., Sicily, WESTERLUND, Nachr. mal. Ges.  
 1892, p. 198.
- Procyclus*, n. g. for Asiatic species of *Cyclotus*, type *C. gassiesiamus*,  
 CROSSE ; FISCHER, Bull. Soc. Autun, iv, p. 183.
- Pupina costata*, n. sp., Queensland, HEDLEY & MUSSON, P. Linn. Soc.  
 N.S.W. vi, p. 559, fig.
- Spiraculum massiei*, n. sp., Laos, MORLET, J. de Conch. 1892, p. 85.

## CYCLOSTOMATIDÆ, ACICULIDÆ, and TRUNCATELLIDÆ.

- Acme allardi*, alleged n. sp., Avignon, NICOLAS, Ann. Soc. Agric. Lyon, iv,  
 p. 49, fig.
- Acroptychia notabilis*, Madagascar, SMITH, Conchologist, ii, p. 23.
- Cyclostoma burtoni*, Tanganyika, ANCEY, Brit. Nat. 1892, p. 126, fig. ;  
*C. leroyi*, E. Centr. Africa, BOURGUIGNAT, (37) 1889, p. 152, figg. ;  
 † *C. jagici*, Tertiary of Markuševac (Croatia), BRUSINA, Glasnik  
 Naravosl. Druzt. vii, p. 172 : n. spp.
- Tropidophora freyi*, n. sp., Is. Nossi-Bé [Madagascar], BÆTTGER, Nachr.  
 mal. Ges. 1892, p. 55.
- † *Truncatella bezanconi*, n. sp., Oligocene of Etampes ; COSSMANN, J. de  
 Conch. xxxii, p. 358, fig.

## HIPPONYCIDÆ and CAPULIDÆ.

- Amalthea* [= *Hipponyx*] *benthophila*, n. sp., Caribbean, DALL, Bull. Mus.  
 C. Z. xviii (1889), p. 289, fig.
- Calyptœidæ* : anatomy and morphology ; HALLER, Morph. JB. xviii, pp.  
 489-518.
- Capulus hungaricus* : structure and development ; ERLANGER, Zool. Anz.  
 xv, pp. 465-468.
- C. (Hyalorisia) galea*, n. sp., Barbadoes, DALL, Bull. Mus. C. Z. xviii  
 (1889), p. 288, fig.
- Crepidula fornicata* : cleavage of the ovum ; CONKLIN, Zool. Anz. xv, pp.  
 185-188, figg.
1892. [VOL. XXIX.]

*Crepidula* of the New Jersey Coast ; STONE, Naut. vi, pp. 40-42, figg.

† *Delphinulopsis*, Laube, is restored as a genus by KITTL, Ann. Hofmuseum Wien, vii, p. 58.

† *D. laubei*, n. sp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, p. 62, fig.

*Platyceras* : notes on Palæozoic species of the group ; KEYES, Am. Geol. x, pp. 273-277.

† *Rothpletzia rudista*, Sim. : on its zoological affinities ; SIMONELLI, Boll. Soc. geol. Ital. xi, pp. 76-80, figg.

#### NARICIDÆ, NATICIDÆ, OOCORYTHIDÆ, and ADEORBIIDÆ.

*Adeorbis* (*Clathrella*) *naticoides*, n. sp., N. Carolina, DALL, Bull. Mus. C. Z. xviii (1889), p. 278.

*Crommium*, n. sect. of *Ampullina*, type † *A. willemeti*, Desh., COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 177.

*Dalium*, n. g. for *D. solidum*, n. sp., Grenada, DALL, Bull. Mus. C. Z. xviii (1889), p. 230, fig.

*Dialytostoma*, n. sect. for *Escharella* [altered 1891 to *Micreschara*], type † *Fossarus fischeri*, De Laub. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 185.

† *Natica* (*Naticina*) *geinitzi*, Rupelian of Germany, BÆTTGER, Mal. Bl. ix, p. 89 ; *N. castrensis*, p. 293, (*Neverita*) *nubila*, p. 294, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889) ; *N. (Lunatia) fordiana*, Florida, SIMPSON, P. Davenport Ac. v (1889), p. 72 \* ; † *N. bodenbenderi*, Inf. Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 13, fig. ; † *N. berwerthi*, p. 86, *transiens*, p. 89, Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg. : n. spp.

† *Naticella* (?) *anomala*, n. sp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, p. 71, fig.

*Naticidæ* : anatomy and morphology ; HALLER, Morph. JB. xviii, pp. 451-489, figg.

† *Neritaria*, n. g., with *N. similis*, n. sp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 192, figg.

*Macromphalina*, n. sect. for *Escharella* [altered 1891 to *Micreschara*], type † *Sigaretus problematicus*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 184.

*Micromphalina*, n. sect. of *Escharella* [altered 1891 to *Micreschara*], type † *Lacuna elegans*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 187.

† *Ptychostoma stachei*, *wachneri*, p. 95, *mojsisovicsi*, *fasciatum*, p. 96, n. spp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg.

*Sigaretopsis*, n. sect. of *Natica*, type † *B. infundibulum*, Wat. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 172.

*Sigaretus minor*, (*Eunaticina*) *carolinensis*, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 297.

## PTENOGLOSSA.

## SCALARIIDÆ.

*Aclis egregia*, *nucleata*, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 325, figg.; *A. tenuistriata*, Port Elizabeth, SOWERBY, (378) p. 28, fig. : n. spp.

*Bifidoscala*, n. sect. of *Scalaria*, type †*S. lemoinei*, De Boury ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 135.

†*Chilocyclus*, Bronn : restored as a genus by KITTL, Ann. Hofmuseum Wien, vii, p. 52.

*Scala scipio*, *apiculata*, p. 310, *babylonia*, p. 311, *retifera*, p. 312, *frielei*, *rushii*, *sericifila*, p. 313, *nitidella*, *muscapedia*, p. 314, *belaurita*, p. 316, *contorquata*, p. 318, *polacia*, p. 319, *aurifila*, p. 322, *concava*, p. 323, *discobolaria*, p. 324, Transatlantic and Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.; *S. rodleri*, *subulata*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, pp. 14 & 15, figg.; †*S. (?) triadica*, p. 45, *S. damesi*, p. 51, Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg. : n. spp.

## GYMNOGLOSSA.

## EULIMIDÆ and PYRAMIDELLIDÆ.

Phylogeny of the species of *Eulimidæ* and *Pyramidellidæ* from the Tertiary strata of N. Italy ; SACCO, Mem. Acc. Tor. xlii, pp. 585-682.

*Auriculina lucida*, n. sp., Port Elizabeth, SOWERBY, (378) p. 37, fig.

*Cingulina acutilirata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 27, fig.

*Cyclodostomia*, n. subg. of *Odostomia*, with n. spp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 628.

*Diptychus*, n. sect. of *Syrnola*, type †*Pyramidella clandestina*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 95.

*Eulima (Leiostraca) fusus*, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 329, fig. ; *E. langleyi*, Port Elizabeth, SOWERBY, (378) p. 27, fig. : n. spp.

*Eulimella (Stylopsis) resticula*, n. sp., Florida Keys, DALL, Bull. Mus. C. Z. xviii (1889), p. 338.

*Hordeulima*, n. subg. of *Eulima*, with †*H. hordeola*, n. sp., Tertiary of N. Italy ; SACCO, Mem. Acc. Tor. xlii, p. 599, fig.

*Loxoptysis*, n. sect. of *Syrnola*, type †*S. conulus*, n. sp. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 103.

*Macroostomia*, n. subg. *Odostomia*, with n. spp., Tertiary of N. Italy ; SACCO, Mem. Acc. Tor. xlii, p. 625, fig.

*Margineulima*, n. sect. of *Eulima*, type †*E. fallax*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 121.

*Miralda crista*, n. sp., Port Elizabeth, SOWERBY, (378) p. 37, fig.

†*Odontostomia lamberti*, n. sp., Oligocene of Etampes, COSSMANN, J. de Conch. 1892, p. 347, fig.

- Peristichia*, n. g., for *P. toreta*, Florida Keys, *agria*, Cape Hatteras; DALL, Bull. Mus. C. Z. xviii (1889), pp. 339 & 340.
- Pharcidella*, n. sect. of *Pyramidella* [*q. v.*].
- Ptycheulimella*, n. subg. of *Eulimella*, with n. spp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 641.
- Pyramidella* (*Pharcidella*) *folinii*, n. sp., Barbadoes, DALL, Bull. Mus. C. Z. xviii (1889), p. 334.
- Pyrgolampros*, n. subg. of *Turbonilla*, with n. spp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 667, fig.
- †*Spica*, ? n. g., with *S. monterosatoi*, n. sp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 645, fig.
- Strioturbonilla*, n. subg. of *Turbonilla*, with n. spp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 676, fig.
- Sulcosubularia*, n. subg. of *Eulima*, with †*S. taurinensis*, n. sp., Tertiary of N. Italy; SACCO, Mem. Acc. Tor. xlii, p. 599, fig.
- Sulcoturbonilla*, n. subg. *Turbonilla*, for †*S. turricula*, Eich. ; SACCO, Mem. Acc. Tor. xlii, p. 674, fig.
- Turbonilla* *belothea*, p. 335, *curta*, p. 337, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.; *T. guernei*, p. 60, *coarctata*, p. 61, Azores, DAUTZENBERG, (107) 1889, figg.; *T. argentea*, *levicostata*, *tegulata*, Port Elizabeth, SOWERBY, (378) p. 25, figg.; *T. crenulifera*, S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 126, fig. : n. spp.
- Turritodostomia*, n. subg. of *Odostomia*, type †*O. plicata*, Mont. ; SACCO, Mem. Acc. Tor. xlii, p. 623, fig.

## SCUTIBRANCHIATA.

## RHIPIDOGLOSSA.

## PROSERPINIDÆ and HELICINIDÆ.

- Ceres*: anatomy; FISCHER & CROSSE, (133) pp. 379-381.
- Cyane orbigny*, n. sp., Bolivia, ANCEY, Le Nat. 1892, p. 178.
- Helicina*: anatomy; FISCHER & CROSSE, (133) pp. 390-392.
- H. leucozonalis*, Brazil, *bourguignatiana*, E. Bolivia, p. 95, *lirifera*, *sulfurea*, E. Bolivia, p. 96, ANCEY, Journ. Conch. vii; *H. (Idesa) nesiotica*, Galapagos Is., DALL, Naut. v, p. 97; *H. wolff*, Galapagos Is., REIBISCH, SB. Ges. Isis, 1892, p. 29, fig. : n. spp.
- Heudeia*: notes on the genus and its allies; CROSSE, J. de Conch. 1892, pp. 284-288, figg.

## NERITIDÆ and NERITOPSIDÆ.

- On the mode of growth and the structure of the shell in *Neritidæ*, especially in *Velates conoideus*, Lamk. ; WOODWARD, P. Z. S. 1892, pp. 528-540.
- †*Hologyra*, n. g., with *H. alpina*, *carinata*, n. spp., Alpine Trias; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, pp. 193 & 194, fig.

- †*Naticopsis* (?) *ladina*, *dianae*, p. 75, *N. zitteli*, *laubei*, p. 76, *altoni*, p. 78, *gaderana*, p. 79, *kinkelini*, p. 82, *uhligi* (Klipst. MS.), *involuta*, p. 83, *telleri*, p. 84, n. spp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg.
- Nerita polita* : nervous system ; BOUTAN, C.R. cxiv, p. 1133.
- Neritina picta*, Sow., note on ; CROSSE & FISCHER, J. de Conch. 1892, pp. 292 & 293.
- N. (Clithon) rhyssodes*, Is. Nossi-Bé [Madagascar], BÆTTGER, Nachr. mal. Ges. 1892, p. 57 ; *N. sargi*, Guatemala, CROSSE & FISCHER, J. de Conch. 1892, p. 296 ; *N. (Theodoxus) mixta*, Spain, WESTERLUND, Nachr. mal. Ges. 1892, p. 200, and An. Soc. Esp. xxi, p. 389 ; †*N. imitans*, Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, p. 41, fig. : n. spp.
- †*Neritodonta cunici*, p. 177, *serrulata*, *lamellata*, p. 178, n. sp., Tertiary of Markuševac (Croatia), BRUSINA, Glasnik Naravosl. Druzt. vii.
- †*Palaeonarica*, n. g., p. 42, type *Naticella concentrica*, Münster, *P. constricta*, p. 42, *cancellata*, p. 44, n. spp., Trias of St. Cassian, KITTL, Ann. Hofmuseum Wien, vii, figg.
- †*Platychilina*, n. g., with *P. woehrmanni*, n. sp., Alpine Trias ; WOEHRMANN & KOKEN, Z. geol. Ges. xlv, pp. 195 & 196, fig.
- †*Velates conoideus*, Lamk., structure and growth of shell ; WOODWARD, P. Z. S. 1892, pp. 528-540.

## TURBINIDÆ and TROCHIDÆ.

- Bathybembix*, Watson emend., notes on ; CROSS, J. de Conch. 1892, pp. 288-292, figg.
- Calliostoma corbis*, p. 365, *orion*, p. 367, (*Eucasta*) *indiana*, p. 368, (*Eutrochus*) *sayanum*, p. 370, *benedicti*, p. 371, *cinctellum*, p. 372, (*Dentistyla*) *sericifilum*, p. 373, Transatlantic and Caribbean, DALL, Bull. Mus. C. Z. xviii (1889) figg. ; *C. farquhari*, Port Elizabeth, SOWERBY, (378) p. 43, fig. ; †*P. jetschini*, Rupelian of Germany, BÆTTGER, Mal. Bl. xi, p. 91 : n. spp.
- Cirsoschilus*, n. sect. of *Collonia*, type †*Delphinula striata*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 76.
- Clanculus waltonæ*, n. sp., Port Elizabeth, SOWERBY, (378) p. 45, fig.
- Cyniscella*, n. sect. of *Collonia*, type †*Cyclostoma cornu-pastoris*, Lamk. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 79.
- Dillwynella*, n. subg. of *Ethalia* [q.v.].
- Ethalia reclusa*, p. 361, *suppressa*, *solida*, (*Dillwynella*) *modesta*, p. 362, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.
- Eucasta*, n. sect. of *Calliostoma* [q.v.].
- Euchelus guttarosea*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 382, fig.
- Gaza fischeri*, n. sp., Santa Lucia, DALL, Bull. Mus. C. Z. xviii (1889), p. 355, fig.

- Gibbula eliaduru*, p. 159, *valentini*, p. 160, Kalymos Is., BÆTTGER, Ber. Senck. Ges. 1892 ; *G. biporcata*, Cape Town, SOWERBY, (378) p. 67 : n. spp.
- Homalochilus*, n. sect. for †*Collonia miliaris*, n. sp., Eocene Paris ; COSSMANN, Mem. Soc. Mal. Belg. 1891 (1892), p. 44.
- Margarita (Turcicula) imperialis*, anatomy ; DALL, Bull. Mus. C. Z. xviii (1889), pp. 376 & 377.
- M. erythrocoma*, p. 375, Caribbean, (*Turcicula*) *bairdii*, p. 378, n. spp., S. California, DALL, Bull. Mus. C. Z. xviii (1889), figg.
- Monilea fritzei*, n. sp., Middle Liu-Kiu Is., BÆTTGER, Nachr. mal. Ges. 1892, p. 166.
- Norrisella*, n. sect. of *Norrisia*, type *Turbo pygmaeus*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 62.
- †*Oncospira legayi*, n. sp., Oxfordian of Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 108, fig.
- Otaulax*, n. sect. of *Leptothyra*, type †*Turbo inermis*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 72.
- Periaulax*, n. sect. of *Eumargarita*, type †*Solarium spiratum*, Lamk. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 66.
- Phasianella azorica*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 61, figg.
- Phorculus*, n. sect. of *Gibbula*, type †*Turbo fraterculus*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 61.
- Pseudodiloma*, n. sect. of *Gibbula*, type †*Trochus mirabilis*, Desh. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 60.
- Solariella fusco-maculata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 44, fig.
- Tectariopsis*, n. sect. of *Turbo*, type †*T. henrici*, Caill. ; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 71.
- †*Trochus demersus*, n. sp., Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 14, fig.
- Turbo (Leptothyra) philipiana, linnei*, Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 353, figg. ; †*T. tuberculosus*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 13, fig. : n. spp.
- Umbonium bairdii*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 359, figg.
- Uvanilla regina*, n. sp., West Coast U. S. ; STEARNS, Naut. vi, p. 85.

#### DELPHINULIDÆ, CYCLOSTREMATIDÆ, and COCCULINIDÆ.

- Cocculina spinigera*, anatomy ; DALL, Bull. Mus. C. Z. xviii (1889), p. 349.
- Cyclostrema turbinum*, p. 393, Havana, *pompholyx*, Gulf of Mexico, *cistronium*, N. Carolina, p. 394, *granulum*, Samana Bay, (*Granigyra*) *limatum*, Cuba, p. 395, DALL, Bull. Mus. C. Z. xviii (1889), figg. ; *C. rotundata, inflata, planulata*, Port Elizabeth, SOWERBY, (378) pp. 45 & 46, figg. : n. spp.
- †*Delphinula parkeri*, n. sp., Oxfordian of Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 107, fig.

- Liotia bairdii*, p. 389, *miniata*, *variabilis*, p. 390, (*Lippistes*) *acrilla*, p. 391, *amabilis*, p. 392, n. spp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.
- Megatyloma*, n. sect. of *Tinostoma*, type †*T. wateleti*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii, p. 50.
- Vitrinella multicarinata*, E. Coast U. S., DALL, Bull. Mus. C. Z. xviii (1889), p. 392; *V. williamsoni*, San Pedro Bay, DALL in WILLIAMSON, P. U. S. Nat. Mus. xv, p. 202, fig. : n. spp.

### HALIOTIDÆ, PLEUROTOMARIIDÆ, and BELLEROPHONTIDÆ.

- Haliotis*: imperforate specimen; SMITH, Conchologist, ii, pp. 75 & 76.
- Murchisonia* (*Goniostropha*) *hibernica*, *tatei*, p. 563, (*Hypergonia*) *pentonensis*, p. 569, *kirkbyi*, p. 570, *plana*, p. 571, (*Cælocaulus*?) *tuedia*, p. 572, n. spp., Carboniferous of British Is., DONALD, Q. J. Geol. Soc. xlviii, figg.
- Pleurotomaria quoyana* and *adansoniana*, description of the animal and anatomy; DALL, Bull. Mus. C. Z. xviii (1889), pp. 397–403.
- †*P. kayseri*, n. sp., Palæozoic of Bolivia, ULRICH, (412) p. 40, fig.
- Schismope fayalensis*, n. sp., Azores, DAUTZENBERG, (107) 1889, p. 65, figg.
- †*Trematonotus britannicus*, Wenlock Beds, near Dudley, proposed as a new species; NEWTON, Geol. Mag. 1892, p. 339: withdrawn as a synonym of *T. dilatatus*; NEWTON, t. c. p. 525.

### FISSURELLIDÆ.

- Fissurellidæ* of the United States: catalogue of; PILSBRY & JOHNSON, Naut. v, pp. 102–107, & 113.
- Emarginula compressa*, Cantraine, note on; MONTEROSATO, J. de Conch. 1892, pp. 78–81.
- E. (Rimula) frenulata*, W. Florida, DALL, Bull. Mus. C. Z. xviii (1889), p. 406, fig.; †*E. kittli*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wieu, vii, p. 13, fig. : n. spp.
- Entomella*, n. sect. of *Emarginula*, type †*E. clypeata*, Lam.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 39.
- Fissurella* (*Glyphis*) *fluviana*, n. sp., Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), p. 408, fig.
- Puncturella watsoni*, p. 403, Caribbean, *P. (?) erecta*, p. 405, n. spp., N. Carolina, DALL, Bull. Mus. C. Z. xviii (1889).
- Scutum*: note on the eye of; PELSENEER, Bull. Soc. Mal. Belg. 1891 [1893], p. xxviii. [*S. =*] *Parmophorus australis*, figured; BOUTAN, Rev. Biol. v, pl. ix (p. 69).

## DOCOGLOSSA.

## ACMÆIDÆ and PATELLIDÆ.

*Acmaea* : position of osphradia ; DALL, Bull. Mus. C. Z. xviii (1889), p. 410. *A. saccharina*, Linn., note on ; TAYLOR, Naut. vi, p. 89.

*Patellidæ* of Japan ; TAYLOR, Naut. vi, pp. 69 & 70.

*Patella vulgata*, respiratory globulin from the blood ; GRIFFITHS, C.R. cxv, p. 259.

## INCERTA SEDES.

† *Astralites*, n. g. for *A. fimbriatus*, n. sp., Devonian, Manitoba ; WHITEAVES, Contr. Canad. Pal. i, p. 323, fig. In some characters this genus resembles *Uvanilla*, *Onustus*, or *Pleurotomaria*, but differs in the presence of a conspicuous fold upon the columella.

## III. POLYPLACOPHORA.

Monograph begun by PILSBRY (409), who subdivides group as far as done into :—1. LEPIDOPLEURIDÆ, (*Lepidopleurus*, *Hanleya*, *Hemiarthrum*, *Microplax*). 2. CHITONIDÆ, *Ischnochitoninæ* (*Leptoplax*, *Spongiochiton*, *Chætopleura*, *Tonicella*, *Schizoplax*, *Callochiton*, *Ischnochiton*), *Chitoninæ*, and *Acanthopleurinæ*.

The integument of Chitons ; THIELE, Biol. Centralbl. xi (1891), pp. 722–726. Respiratory globulin in the blood of Chitons ; GRIFFITHS, C.R. cxv, pp. 474 & 475. Embryology of *Chiton* ; METCALF, Johns Hopk. Univ. Circ. xi, p. 79.

*Callochiton princeps*, p. 50, Hab. ?, *lobatus*, p. 53, Tasmania (Carpenter MS.), n. spp., PILSBRY in TRYON's Manual, xiv, fig.

*Chætopleura gemmea*, p. 31, Monterey, California, *armillata*, p. 39, Is. Gorriti (Carpenter MS.), n. spp. ; PILSBRY in TRYON's Manual, xiv, fig.

*Cyanoplax*, n. subg. of *Toniciella* ; PILSBRY in TRYON's Manual, xiv, p. 44.

*Ischnochiton* : PILSBRY in TRYON's Manual, xiv, divides into subgenera as follows :—*Stenochiton*, *Stenoplax*, *Ischnoplax*, *Heterozona*, *Tachydermon*, *Ischnochiton*, *Ischnoradsia*.

*I. floridanus*, p. 58, West Key, Florida, *fallax* (Carpenter MS.), p. 59, Monterey, California, *acrior* (*ib.*), p. 61, Lower California, *conspicuus* (*ib.*), p. 63, California and Lower California, *cariosus* (*ib.*), p. 65, Australia, *solidior* (*ib.*), p. 76, Philippines, *asperior* (*ib.*), p. 77, Hong Kong or Hakodade, *perornatus* (*ib.*), p. 77, hab. ?, *multidentatus* (*ib.*), p. 85, Bonin Is., *haddonii* (*ib.*), p. 88, Port Jackson, N.S.W., *bisculptus* (Carpenter MS.), p. 119, Hong Kong ?, *neucombi* (*ib.*), p. 120, Santa Catalina Is., *radians* (*ib.*), p. 121, Monterey, California, *aureotinctus* (*ib.*), p. 123, Santa Catalina Is., *decipiens* (*ib.*), p. 123, Monterey,

- California, *corrugatus* (*ib.*), p. 123, California, *cooperi* (*ib.*), p. 127, California, *sinudentatus* (*ib.*), p. 128, Monterey, California, n. spp., PILSBRY in TRYON'S Manual, xiv, figg.
- Lepidopleurus rugatus*, p. 11, Lower California, *granoliratus*, p. 14, Mogador, *curvatus*, p. 16, Japan (Carpenter MS.), n. spp., PILSBRY in TRYON'S Manual, xiv, figg.
- Lepidozona*, n. sect. of subg. *Ischnochiton* (s. s.); PILSBRY in TRYON'S Manual, xiv, pp. 86 & 125 [at first, p. 55, given as sect. of subg. *Ischnoradsia*].
- Leptochiton pergranatus*, n. sp., Dominica, DALL, Bull. Mus. C. Z. xviii (1889), p. 414.
- Notoplax floridanus*, n. sp., Florida Keys, DALL, Bull. Mus. C. Z. xviii (1889), p. 416.
- Radsia*, n. sect. of subg. *Ischnochiton* (s. s.); PILSBRY in TRYON'S Manual, xiv, pp. 54 & 86.
- Spongiochiton productus* (Carpenter MS.), n. sp., New Zealand, PILSBRY in TRYON'S Manual, xiv, p. 26, fig.

#### IV. APLACOPHORA.

- Chætoderma nitidulum*, Lovén: histological notes; WIRÉN, Biol. Fören. Förhandl. iii (1890), pp. 37-49.
- Proneomenia sluiteri*: anatomy and histology; HEUSCHER, Viert. Ges. Zurich, xxxvii, pp. 148-161, figg.; *P. aglaopheniæ*, embryogeny of; PRUVOT, C.R. cxiv, pp. 1211-1214.

#### V. SCAPHOPODA.

- Structure and relationship of the *Solenocoencha*: anatomy of *Dentalium dentale*, and notes on that of *Siphonentalis affinis* and *Cadulus subfusiformis*; PLATE, Zool. JB. v, Anat. pp. 301-386, figg.: also *id.* Verh. Deutsch. Zool. Ges. i (1891), pp. 60-63. [For conclusions as to the phylogenetic relationships, see *ante*, p. 36.]
- Cadulus acus*, fig., San Domingo, *minusculus*, Cape Hatteras, n. spp., DALL, Bull. Mus. C. Z. xviii (1889), p. 432.
- Dentalium*: notes on its organization; PLATE, SB. Ges. Marb. 1890 (1891), pp. 26-29.
- D. callipeplum*, p. 419, *matará*, p. 420, *calamus*, p. 421, *taphrium*, p. 422, *carduus*, p. 423, *gouldii*, p. 424, *callithrix*, p. 427, Transatlantic and Caribbean, DALL, Bull. Mus. C. Z. xviii (1889), figg.; †*D. haeringense*, Tertiary of Häring, DREGER, Ann. Hofmuseum Wien, vii, p. 12, fig. : n. spp.
- Lævidentalium*, n. sect. of *Dentalium*, type †*D. incertum*, Desh.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 11.
- Lobantale*, n. sect. of *Dentalium*, type †*D. duplex*, Defr.; COSSMANN, Cat. Coqu. Foss. Eocene Paris, iii (1888), p. 11.

## VI. PELECYPODA.\*

New classification proposed by GROBBEN (163, 164).—Some notes on the morphology of the *Pelecypoda*; KELLOG, Johns Hopk. Univ. Circ. xi, pp. 80–83.—On the margin of the mantle of *Acephala siphoniata*; RAWITZ, Jen. Z. Nat. xxvii, pp. 1–232, figg.—On the phylogeny of the Byssus-apparatus; THIELE, Verh. Deutsch. Zool. Ges. ii, pp. 52–57.

## SEPTIBRANCHIATA.

Anatomy of the *Septibranchiata* discussed; DALL, Bull. Mus. C. Z. xviii (1889), pp. 441–452.

*Cuspidaria (Neaera) cuspidata*, Olivi, structure; GROBBEN, Arb. z. Inst. Wien, x, No. 3, pp. 1–31, figg.

## EULAMELLIBRANCHIATA.

## ANATINACEA.

†*Allorisma* re-defined; GOODCHILD, P. Phys. Soc. Edinb. xi, pp. 245 & 246.

*Ectorisma*, n. g., closely related to *Pholadomya*, for *E. granulata*, n. sp., S. Australia; TATE, Tr. R. Soc. S. Austr. xv, p. 127, fig.

*Pandora (Kennerlia) bushiana*, n. sp., Florida, DALL in SIMPSON, P. Davenport Ac. v (1889), p. 71.

†*Pholadomya elegantula*, n. sp., Pliocene of Savena, near Bologna, FORESTI, Bull. Soc. Mal. Ital. xvi, p. 81, fig.

†*Pleuromya gottschei*, n. sp., Inf. Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 11, fig.

†*Thracia aequilatera*, n. sp., Neocomian of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 21, fig.

## PHOLADACEA.

Monograph by CLESSIN, pp. 25–40 & pls. vii–xii; MARTINI & CHEMNITZ (246).

†*Aspidopholus stainieri*, n. sp., Tertiary of Antwerp, VINCENT, Bull. Soc. Mal. Belg. 1891 [1893], p. lxxxvii, fig.

†*Jouannetia cochlearella*, n. sp., Eocene of Belgium, VINCENT, Mem. Soc. Mal. Belg. 1891 [1893], p. 166.

*Pholas dactylus*: anatomy and physiology; DUBOIS, Ann. Univ. Lyon, ii, fasc. 2.

*Pholadida*, from the Eocene of Belgium; VINCENT, Mem. Soc. Mal. Belg. 1891 [1893], pp. 164–168.

\* Arranged according to Pelseneer's scheme, vide WOODWARD, Ann. N. H. xi, p. 158.

## MYACEA.

- † *Corbula bodenbenderi*, p. 19, *inflata*, *nana*, p. 20, n. spp., Neocomian of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xliv, figg.

## CARDIACEA.

- Ceratoconcha*, n. g. for *C. costata*, n. sp., Tertiary of Agram; GORJANOVIC-KRAMBERGER, Glasnik Naravosl. Druzt. iv (1889), p. 50, fig.
- Chama nicolloni*, n. sp., West Coast of France, DAUTZENBERG, Bull. Soc. Ouest France, ii, p. 133, figg.
- † *Cornucaprina*, n. g., for *Schiosia carinata*, G. Böhm; FUTTERER, Pal. Abh. vi, p. 87, fig.
- † *Limnocardium jagici*, p. 186, *kosici*, p. 188, *margaritaceum*, p. 190, n. spp., Tertiary of Markuševac (Croatia); BRUSINA, Glasnik Naravosl. Druzt. vii.
- † *Orthoptychus*, n. g., for *O. striatus*, n. sp., Upper Cretaceous of the Venetian Alps; FUTTERER, Pal. Abh. vi, p. 91, figg.
- † *Schiosia*, n. sect. for *S. schiosensis*, n. sp., Cretaceous of the Venetian Alps; BOEHM, Ber. Ges. Freiburg, vi, p. 11, with other new species of *Caprinidae*.
- Sphaerium nyanzae*, n. sp., Victoria Nyanza, SMITH, Ann. N. H. x, p. 383.

## VENERACEA.

- † *Conchodus*: notes on the genus, with *C. schwageri*, n. sp., Upper Trias of the Northern Alps; TAUSCH, Abh. Geol. Reichsanst. xvii, No. 1, 8 pp., 3 pls.
- Corbicula trajecta*, n. n. for *C. tongkingensis*, Clessin; FISCHER, Bull. Soc. Autun, iv, p. 240.
- † *Cyprina argentina*, n. sp., Neocomian of the Argentine Cordilleras; BEHRENDSEN, Z. geol. Ges. xlv, p. 22, fig.
- Cytherea convexa*, Say, preocc. by Brongniart, for a Paris Basin species; *C. sayana*, Conrad, stands; DALL, Naut. vi, p. 52.
- C. gracilentia*, *rugata*, *nitidula*, n. spp.?, W. Coast of France, LOCARD, Échange, vii (1891), p. 69.
- † *Isocardia koeneni*, n. sp., Neocomian of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 22, fig.
- Isocardiidæ*, n. n. for *Cyprinidæ*; BUCQUOY & others, (55) p. 313.
- Meroë ovalis*, n. sp., Port Elizabeth, SOWERBY, (378) p. 59, fig.
- † *Pachyerisma*: on the scar of the pedal muscle; BOEHM, Ber. Ges. Freiburg, vi, pp. 119 & 120.
- Petricola ponsonbyi*, n. sp., Port Elizabeth, SOWERBY, (378) p. 61, fig.
- † *Ptychomya koeneni*, n. sp., Neocomian of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 23, fig.

## TELLINACEA.

- Donax bipartitus*, n. sp., South Africa, SOWERBY, (378) p. 58, fig.  
*Herouvalia* defined; COSSMANN, Mem. Soc. Mal. Belg. 1891 (1892), p. 28.  
*Mactra*: on the systematic position of *Mactra* and its allies; BITTNER, Verh. geol. Reichsanst. 1892, pp. 232-241.  
*Mactra capensis*, n. sp., Port Elizabeth, SOWERBY, (378) p. 55, fig.  
*Syndosmya schneideri*, n. sp., Borkum Is., BETTGER in SCHNEIDER, Nachr. mal. Ges. 1892, p. 116.  
*Tellina (Macoma) crawfordi, rousi*, n. spp., Port Elizabeth, SOWERBY, (378) p. 57, figg.

## SUBMYTILACEA.

(*Marine Forms.*)

- † *Anthracosia venjukowi*, p. 155, *subnucleus*, p. 156, *loewinsoni*, p. 157, *oviformis*, *truncata*, *obscura*, p. 158, n. spp., Permian of Russia, AMALIZKY, Palæontogr. xxxix, figg.  
 † *Carbonicola subovalis*, p. 146, *striata*, p. 148, *substegocephalum*, p. 149, *recta*, *indeterminata*, p. 150, *nova*, p. 152, n. spp., Permian of Russia, AMALIZKY, Palæontogr. xxxix, figg.  
*Cardita elata*, Port Elizabeth, SOWERBY, (378) p. 63, fig.; *C. gemmulifera*, S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 130, fig.: n. spp.  
*Carditella rugosa*, n. sp., South Africa, SOWERBY, (378) p. 63, fig.  
*Felania subradiata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 62, fig.  
*Lucina per-obliqua*, p. 128, *paupera*, p. 129, n. spp., S. Australia, TATE, Tr. R. Soc. S. Austr. xv, figg.  
 † *Myoconcha parvula*, n. sp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 177, fig.  
*Mysella ovalis*, n. sp., S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 128, fig.  
*Neocardia*, n. g. for *N. agulata*, n. sp., Port Elizabeth, SOWERBY, (378) p. 63, fig.  
 † *Opis pellati*, n. sp., Oxfordian of Boulogne, RIGAU, Mém. Soc. Acad. Boulogne, xiv, p. 107, fig.  
 † *Plethocardia*, n. g. for *P. umbonata* and *suberecta*, n. spp.; ULRICH, Rep. Geol. Surv. Minnesota, No. 19, pp. 243-245, figg.  
*Tellinya producta*, n. sp., St. Helena, SMITH, Ann. N. H. x, p. 130.  
 † *Trigonodus costatus*, p. 186, *minutus*, p. 187, n. spp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, figg.

(*Freshwater Forms.*)

## UNIONIDÆ and DREISSENSIIDÆ.

- Anodonta*: notes on; JHERING, Zool. Anz. xv, pp. 1-5.  
*A. chapalensis*, Mexico, CROSSE & FISCHER, J. de Conch. 1892, p. 295;  
*A. græca*, p. 90, *quellenneci*, p. 91, *lepida*, p. 92, Lake Copais, Greece,

- lhotellerii*, Belgium, DROUET, J. de Conch. 1892; *A. recurvirostris*, (Küster MS.) *gallensteini*, Carinthia, KOBELT in ROSSMAESSLER, (322) vi, p. 47, figg. : n. spp.
- Conger* and *Dreissensia*, their relationship and distribution in space and time; OPPENHEIM, Z. geol. Ges. xliii, pp. 923-966, 1 pl. *C. triangularis*, notes on the group; BRUSINA, Z. geol. Ges. xliv, pp. 488-497.
- † *C. hænesi*, p. 492, *ornithopsis*, p. 495, BRUSINA, Z. geol. Ges. xliv; † *C. mytilopsis*, *ramphora*, p. 182, *doderleini*, p. 183, *gitneri*, p. 184, Tertiary of Markuševce, BRUSINA, Glasnik Naravosl. Druzt. vii : n. spp.
- Cristaria* [= *Dipsas*], note on; JHERING, Nachr. mal. Ges. 1892, pp. 1-14.
- Dipsas plicata*, Lea: anatomy; ISHIKAWA (192A).
- Dreissensia* and *Conger*, their relationship and distribution in space and time; OPPENHEIM, Z. geol. Ges. xliii, pp. 923-966, 1 pl. *Dreissen[si]a polymorpha*, development; KORSCHULT, Ann. N. H. ix, pp. 157-169, figg.
- D. massiei*, n. sp., Laos, MORLET, J. de Conch. 1892, p. 85.
- † *Dreissensiidae*: fossil species of Dalmatia, Croatia, and Slavonia; BRUSINA, Glasnik Naravosl. Druzt. vii, pp. 195-199.
- Glabaris*: notes on; JHERING, Zool. Anz. xv, pp. 1-5.
- Margaritana margaritifera*, Linn., notes on a specimen of; MOEBIUS, SB. nat. Fr. 1892, p. 92.
- † *Najadites verneuli*, p. 187, *fischeri*, *subcastor*, p. 191, *okensis*, p. 193, *parallela*, *sibirzewi*, p. 194, *indeterminata*, *dubia*, *monstrum*, p. 195, n. spp., Permian of Russia; AMALIZKY, Palæontogr. xxxix, figg.
- † *Oligodon*, n. g., p. 179, for *O. kingi*, p. 181, *geinitzi*, *zitteli*, p. 182, n. spp., Permian of Russia, AMALIZKY, Palæontogr. xxxix, figg.
- † *Palæomutela*, n. g., p. 159, for *P. verneuli*, p. 163, *subparallela*, *solenoides*, p. 164, *trapezoidalis*, *compressa*, p. 165, *lunulata*, *semi-lunulata*, p. 166, *keyserlingi*, p. 168, *orthodonta*, *ovalis*, p. 169, *subovalis*, *trigonalis*, p. 170, *irregularis*, *golowkinskiana*, p. 171, *rectangularis*, *obliqua*, *triangularis*, p. 174, *vaga*, *parva*, p. 175, *elegantissima*, p. 176, *murchisoni*, *plana*, *lævis*, p. 177, *crassa*, *gorbatovi*, p. 178, *curiosa*, p. 179, n. spp., Permian of Russia, AMALIZKY, Palæontogr. xxxix, figg.
- Pseudodon crassus*, *æneolus*, Borneo; DROUET & CHAPER, Mém. Soc. Zool. v, pp. 151 & 152, figg. (see also J. de Conch. 1892, pp. 93 & 94).
- Spatha subaequilatera*, n. sp., Victoria Nyanza, MARTENS, Conch. Mittheil. iii (1889), p. 18, fig.
- Spathella bloyeti*, p. 198, *spathuliformis*, p. 199, E. Centr. Africa, n. spp., BOURGUIGNAT, (37) 1889, figg.
- Unionidae*: on a revision of the American *Unionidae*; SIMPSON, Naut. vi, pp. 78-80: preliminary list of New York species; MARSHALL, Bull. New York Mus. Nat. Hist. i, 17 pp. *Unionidae* of New York State; MARSHALL, Bull. New York Mus. Nat. Hist. i, No. 1. *Unionidae* of Spoon River, Illinois; STRODE, Am. Nat. xxvi, pp. 495-501.

- Unio* : variability of the Tasmanian ; JOHNSTON, P. R. Soc. Tasm. 1888 (1889), pp. 95 & 96.
- U. luteolus* and *radiatus*, more notes on ; DEAN, Naut. v, p. 112. *U. vagulus*, n. n. for *U. subtrigonus*, Sow., non Deshayes ; FISCHER, Bull. Soc. Autun. iv, p. 223. *U. quintardii*, Cragin, *pilsbryi*, Marsh, and (*Arconaia*) *provancheriana*, Pilsbry, figured ; PILSBRY, P. Ac. Philad. 1892, pp. 131 & 132, 2 pls.
- U. usumasintæ*, *yzabalensis*, Guatemala, CROSSE & FISCHER, J. de Conch. 1892, pp. 294 ; *U. corbeti*, Lake Kaudy, Ceylon, DESCHAMPS, Bull. Soc. Z. Fr. xvii, p. 68, fig. ; *U. serradelli*, Philippines, p. 86, *helencæ*, Corfu, p. 87, *thiesseæ*, Greece, p. 88, *clessini*, Danube [*i.e.* the Donau] at Lauingen, p. 89, DROUET, J. de Conch. 1892 ; *U. lugens*, p. 147, *sacculus*, p. 148, *lingulatus*, p. 149, *radulosus*, p. 150, *trompi*, p. 153, *fulvaster*, p. 154, Borneo, DROUET & CHAPER, Mém. Soc. Z. Fr. vi, figg. ; *U. dugasti*, Laos, MORLET, J. de Conch. 1892, p. 86 ; *U. subluridus*, Orange Springs, Volusia County, Florida, SIMPSON, P. U. S. Nat. Mus. xv, p. 432, fig. : n. spp.

## PSEUDOLAMELLIBRANCHIATA.

### OSTREIDÆ and AVICULIDÆ.

- † *Avicula kokeni*, n. sp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xliv, p. 175, fig.
- † *Cleionychia*, n. g., type *Ambonychia lamellosa*, Hall, with *C. rhomboidea*, n. sp., Trenton Limestone of U. S. ; ULRICH, Am. Geol. x, p. 97, fig.
- † *Lithiotis problematica*, Gümb., notes on ; BOEHM, Ber. Ges. Freiburg, vi, pp. 65–80, figg.
- † *Maccoyella*, n. g., type *Avicula barklyi*, Moore, Rolling Downs formation of Queensland ; JACK & ETHERIDGE, (193) p. 451, fig.
- † *Merismopteria*, n. g., type *Pterinea macroptera*, from the Permo-Carboniferous of Queensland ; JACK & ETHERIDGE, (193) p. 271, fig.
- Ostrea* : notes on oysters ; SCHIELDT (334, 335, 336).
- † *Perna nana*, n. sp., Inferior Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xliv, p. 11, fig.
- † *Pinna tomassi*, n. sp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xliv, p. 177, fig.
- † *Posidonomya steinmanni*, n. sp., Inferior Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xliv, p. 10, fig.
- † *Pseudavicula*, n. g., type *Lucina anomala*, Moore, from the Rolling Downs Beds of Queensland ; JACK & ETHERIDGE, (193) p. 449, fig.

### PECTINACEA.

- Amusium dalli* : gill structure ; DALL, Bull. Mus. C. Z. xviii (1889), p. 433.
- † *Dellopecten*, n. g., type *Pecten illawarensis*, Morris, intermediate between

- Pecten* and *Aviculopecten*, from the Permo-Carboniferous of Queens-land ; JACK & ETHERIDGE, (193) p. 269, fig.
- Dimya argentea* : gill structure ; DALL, Bull. Mus. C. Z. xviii (1889), p. 433.
- Pecten crouchi*, Mauritius, SMITH, Ann. N. H. ix, p. 255, fig. ; +*P. zitteli*, Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 173, fig. : n. spp.
- Spondylus gæderopus*, L., disappearance from Maltese Waters ; CARUANA-GATTO, Med. Nat. i, p. 165.
- S. powelli*, n. sp., Madeira, SMITH, Journ. Conch. vii, p. 70.

### FILIBRANCHIATA.

- Anomiidæ* of the Coast of France, with *Anomia boletiformis*, n. sp. [?] ; LOCARD, Échange, vii (1891), p. 86.
- Arca ectocomata* : gill structure ; DALL, Bull. Mus. C. Z. 1889, p. 433.
- Barbatia helblingia* : foot and byssus glands figured ; SLUITER, Tijdschr. Nederl. Dierk. Ver. iii, pp. 170-184.
- Lithodomus dactylus*, on the boring powers of ; CARAZZI, Atti Soc. Ligust. iii, p. 279-297, fig.
- L. projectans*, *cuneiformis*, S. Australia, n. spp., TATE, Tr. R. Soc. S. Austr. xv, pp. 131 & 132, figg.
- †*Myophoria* (?) *plana*, n. sp., Alpine Trias, WOEHRMANN & KOKEN, Z. geol. Ges. xlv, p. 183, fig.
- Myrina crenatulifera*, n. sp., S. Australia, TATE, Tr. R. Soc. S. Austr. xv, p. 131, fig.
- Pectunculus* : species living in the Mediterranean, and fossil in the Upper Tertiary strata of Italy ; GREGORIO, Nat. Sicil. xi, pp. 89-96, 106-114, & 209-212 ; MONTEROSATO, t. c. pp. 143-155.
- †*Schizodus negrii*, n. sp., Trias of Balia, Asia Minor, BITTNER, JB. Geol. Reichsanst. xlii, p. 86, fig.
- †*Trigonia densestriata*, Inferior Oolite of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, p. 12, fig. ; +*T. transatlantica*, p. 27, *anguste-costata*, p. 28, Upper Cretaceous of the Argentine Cordilleras, BEHRENDSEN, Z. geol. Ges. xlv, figg. ; +*T. seeleyi*, Lower Oolites of Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 106, fig. : n. spp.

### PROTOBRANCHIATA.

- Nucula* : list of species belonging to the subgenus *Acila* ; SMITH, Journ. Conch. vii, pp. 110-112.
- N. (Acila) fultoni*, n. sp., Bay of Bengal, SMITH, Journ. Conch. vii, p. 111.

- †*Nuculites beneckeï*, p. 46, *kruegeri*, p. 48, n. spp., Palæozoic of Bolivia, ULRICH (412), figg.  
†*Palæoneilo forbesi*, n. sp., Palæozoic of Bolivia, ULRICH, (412), p. 42, fig.  
†*Yoldia beyrichi*, n. sp., Rupelian of Germany, BËTTGER, Mal. Bl. xi, p. 92.
- 

## INCERTA SEDES.

- †*Amnigenia rhenana*, n. sp., Middle Devonian of Germany, BEUSHAUSEN, JB. Preuss. geol. Landesanst. xi, Abhandl. p. 1, fig.

## VIII. BRACHIOPODA.

BY

B. B. WOODWARD, F.G.S., F.R.M.S., &c.

---

### I.—TITLES.\*

1. BEECHER, C. E. Development of the *Brachiopoda*. Pt. II. Classification of the stages of growth and decline. Am. J. Sci. xlv, pp. 133-154, 1 pl.
2. —. Ueber die Entwicklung der Brachiopoden. JB. Mineral. 1892, i, pp. 178-197, 1 pl.  
Translation of article in Am. J. Sci. 1891. See Zool. Rec. 1891.
3. BIERBAUER, B. A Check-list of the Palæozoic Fossils of Wisconsin, Minnesota, Iowa, Dakota, and Nebraska. Bull. Minnesota Acad. iii. [*Brachiopoda*, pp. 226-234.]
4. BITTNER, A. Neue Arten aus der Trias von Balia in Kleissasien. JB. geol. Reichsanst. xlii, pp. 77-89, 2 pls.
5. —. Brachiopoden der Alpinen Trias. Nachtrag i. Abh. geol. Reichsanst. xii, No. 2, 38 pp., 4 pls.
6. BLOCHMANN, F. Ueber die Anatomie und die verwandtschaftlichen Beziehungen der Brachiopoden. Arch. Ver. Mecklenb. xlv, pp. 37-50.
7. —. Untersuchungen über den Bau der Brachiopoden. 1. Die Anatomie von *Crania anomala*, O. F. M. Jena: 1892, 4to, 65 pp., 7 pls.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

8. BOESE, E., & FINKELSTEIN, H. Die mitteljurassischen Brachiopoden-Schichten bei Castel Tesino im östlichen Südtirol. *Z. geol. Ges.* xlv, pp. 265-302.

*Brachiopoda* begin p. 285.

9. CALVIN, S. Two unique *Spirifers* from the Devonian Strata of Iowa. *Bull. Lab. Iowa*, ii, pp. 165-167, 1 pl.
- CLARKE, J. M. [See HALL & CLARKE (17).]
10. CRANE, MISS A. Recent observations on the anatomy and development of the *Brachiopoda*. *Nat. Sci.* 1892, pp. 603-611.
11. DERBY, O. A. Nota sobre a geologia e paleontologia de Matto Grosso. [*Brachiopoda* with *Notothyris* (?) *smithii* and *Centronella margarida*, n. spp.] *Arch. Mus. R.* Jan. ix, pp. 59-88.
12. ETHERIDGE, R., JUN. On the occurrence of an *Orthis* [*O. leviensis*], allied to *O. actoniae*, J. de C. Sby., and *O. flabellulum*, J. de C. Sby., in the Lower Silurian rocks of Central Australia. In BROWN Reports on the Coal-bearing area near Leigh's Creek [Govt. Rept.], 1891, pp. 13 & 14, figg.
13. —. The *Pentameridae* of New South Wales. *Rec. Geol. Surv. N.S.W.* iii, pp. 49-60, 2 pls.
- FINKELSTEIN, H. [See BOESE & FINKELSTEIN (8).]
14. FISCHER, P., & ŒHLERT, P. Mission scientifique du Cap Horn (1882-83)—Brachiopodes. *Bull. Soc. Autun*, v, pp. 254-334, 5 pls., text illust.
15. — & —. Brachiopodes de l'Atlantique Nord. [Fasc. iii of Résultats des campagnes scientifiques accomplies sur son yacht par le ... Prince de Monaco.] Monaco : 1892, 4to, 30 pp., 2 pls.
16. — & —. Sur l'évolution de l'appareil branchial de quelques Brachiopodes. *C.R.* cxv, pp. 749-751.
17. HALL, J., & CLARKE, J. M. An introduction to the study of the genera of Palæozoic *Brachiopoda*. Pt. i. *Geol. Surv. State of New York. Palæontology* viii, pp. xvi & 367, 41 pls.
18. JOHNSTON, R. M. Additions to the list of Tasmanian Fossils [*Brachiopoda*] of Upper Palæozoic age. *P. R. Soc. Tasm.* 1889 (1890), pp. 137-141, 1 pl.
19. JOUBIN, L. Recherches sur l'anatomie de *Waldheimia venosa*, Sol. *Mém. Soc. Zool.* v, pp. 554-583, figg.
20. KAYSER, E. Beiträge zur Kenntniss der Fauna der Siegenschen Grauwacke. *JB. k. preuss. geol. Landesanst.* 1890, pp. 95-107, 5 pls.
21. MATTHEW, G. F. *Trematobolus*: an articulate Brachiopod of the inarticulate Order. *Can. Rec.* v, pp. 276-279, fig.

22. NEWTON, R. B. On the occurrence of *Chonetes pratti*, Davidson, in the Carboniferous rocks of Western Australia. Geol. Mag. 1892, pp. 468, 469, & 542-544, 1 pl.
- OEHLERT, D. P., & FISCHER, P. [See FISCHER & OEHLERT (14-16).]
23. RIGAUX, E. Notice géologique sur le Bas Boulonnais. Mém. Soc. Acad. Boulogne, xiv [n. spp. described on pp. 102-108, 2 pls.].
24. ROTHPLETZ, A. Die Perm-, Trias- und Jura-formation auf Timor und Rotti im Indischen Archipel. Palæontogr. xxxix, Permian *Brachiopoda*, pp. 76-85, figg.
25. SCHELLWIEN, E. Die Fauna des Karnischen Fusilinenkalks . . . Thl. I. . . *Brachiopoda*. Palæontogr. xxxix, pp. 1-56, 8 pls.  
SCHUCHERT, C. [See WINCHELL & SCHUCHERT (31).]
26. SIMPSON, G. B. Descriptions of new species of fossils from the Clinton . . . and Waverley groups, &c. Tr. Am. Phil. Soc. xvi (1890) [*Brachiopoda*, pp. 437-445, figg.]
27. SOWERBY, G. B. Marine shells of South Africa, &c. 4to, London.  
[6 spp. enumerated at p. 67.]
28. ULRICH, A. Palæozoische Versteinerungen aus Bolivien. Steinmann's Beitr. Geol. Palæont. S. Amer. i, 116 pp., 5 pls. Stuttgart : 1892, 8vo.
29. WALKER, J. F. The discovery of *Terebratulina substriata*, Schlotheim, in Yorkshire. Geol. Mag. 1892, p. 364.
30. —. On Yorkshire *Thecidea*. T. c. p. 548.
31. WINCHELL, N. H., & SCHUCHERT, C. Preliminary descriptions of new *Brachiopoda* from the Trenton and Hudson River groups of Minnesota. Am. Geol. ix, pp. 284-294.

## II.—ANATOMY, &c.

Anatomy and relationships of the *Brachiopoda* ; BLOCHMANN (6), who considers them closely related to *Phoronis*.—Recent observations on the anatomy and development of the *Brachiopoda* [a summary] ; CRANE (10).—Anatomy of *Crania anomala*, O.F.M. ; BLOCHMANN (7).—Anatomy with figg. of *Waldheimia venosa*, Solander ; JOUBIN (19).

Development of *Brachiopoda*, stages of growth and decline ; BEECHER (1).

Evolution of the branchial apparatus of *Brachiopoda* ; FISCHER & OEHLERT (16).

Observations on the characters of the shells of Palæozoic *Brachiopoda*, and such structures in the recent forms as throw light upon them are given in HALL & CLARKE (17).

## III.—DISTRIBUTION.

## A.—GEOGRAPHICAL.

English Channel : *Brachiopoda* off the Coast of the Department of the Somme ; BIZET, Mém. Soc. L. N. Fr. viii, pp. 390–392.

North Atlantic forms ; FISCHER & EHLERT (15).

South Africa : 6 species recorded from ; SOWERBY (27).

Australia : third supplement to list of Paliobranchs ; TATE (see *ante*, *Moll.* 399A).

Cape Horn species ; FISCHER & EHLERT (14).

## B.—GEOLOGICAL.

Summary of the palæontology of 1890, *Brachiopoda* by D. P. EHLERT, Ann. Géol. univ. Paris, 1890 (1892), pp. 1025–1039.

Fossil types in the Bath Museum, P. Bath N. H. Soc. vii, pp. 279–281.

Tertiary species from Queensland, 1 n. sp., JACK & ETHERIDGE, (*ante*, *Moll.* 193) pp. 561–574.

Eocene *Brachiopoda*, from the environs of Paris ; Mem. Soc. Mal. Belg. 1891, pp. 15–20.

Secondary *Brachiopoda*, from the Balkans, with new species ; VANKOV, Rad. jugoslav. akad. cxi, pp. 92 & 93.—Secondary *Brachiopoda*, from Queensland and New Guinea, with new species ; JACK & ETHERIDGE, (*ante*, *Moll.* 193) pp. 442–444.

Cretaceous *Brachiopoda* of Schleswig-Holstein ; STOLLY, MT. min. Inst. Kiel, i, pp. 245–248.—Upper Senonian *Brachiopoda* of the Eifel ; VOGEL, Verh. Ver. Rheinl. xlix, pp. 87–90.—3 species quoted from the Cretaceous of the Podol'ski Government ; RADKEVICH, Zapiski Kiev, xi (1891) p. 83.

Jurassic *Brachiopoda* of Yorkshire, List ; FOX-STRANGWAYS, Mem. Geol. Surv. U. K. Jurassic Rocks, vol. ii, pp. 40–45, 148–150, & 201–204.—Middle Jurassic *Brachiopoda* from Castel Tesino, in S. E. Tirol ; BOESE & FINKELSTEIN (8).—*Rhynconella pellati*, n. sp., Oxfordian of Boulogne ; RIGAUX (23).

Liassic *Brachiopoda* from the Ironstone, near Helmstedt, with new species ; WOLLEMAN, Verh. Ver. Rheinl. xlix, pp. 125–146.

Triassic *Brachiopoda* of the Duchy of Sachsen-Altenburg ; GEINITZ, MT. Osterlande, v, pp. 189 & 190.—Triassic species from the Alps, with many new forms, and *Dinarella*, n. g. ; BITTNER (4).—*Waldheimia bukowskii*, *Spiriferina moscai*, and *Spirigera tricuspis*, n. spp., Trias of Balia, Asia Minor ; BITTNER (5).

Palæozoic *Brachiopoda* of the State of New York (*Inarticulata* and *Articulata*, *Orthis* to *Productus*), with many new genera and new species ; HALL & CLARKE (17).—Check-list of the Palæozoic *Brachiopoda* from Wisconsin, Minnesota, Iowa, Dakota, and Nebraska ; BIERBAUER (3).—New *Brachiopoda* from the Palæozoic of Boulogne ; RIGAUX (23).—Permian and Devonian *Brachiopoda* of the Duchy of Sachsen-Altenburg ;

GEINITZ, MT. Osterlande, v, pp. 169, 177 & 178.—Upper Palæozoic *Brachiopoda* of Tasmania; JOHNSTON (18).—Middle Devonian and Permo-Carboniferous species from Queensland, with new and indeterminate species; JACK & ETHERIDGE (*ante*, *Moll.* 193) pp. 64-68, 225-264.

Permian *Brachiopoda* from Timor and Rotti, with new species; ROTH-PLETZ (24).

Carboniferous: *Brachiopoda* of the Carinthian Fusilina Limestone, with many new species; SCHELLWIEN (25).—Grauwacke Fauna of Siegen, with *Discina*, 2 new species; KAYSER, JB. k. preuss. geol. Landesanst. xi, Abhandl. pp. 95-107, figg.—*Chonetes pratti* from the Carboniferous of W. Australia; NEWTON (22).

Devonian *Brachiopoda* of the Eastern Alps, with new species; FRECH, Z. geol. Ges. xliii, pp. 672-680.—Devonian *Brachiopoda* from Matto Grosso: *Notothyris* (?) *smithii* and *Centronella* (?) *margarida*, n. spp.; DERBY (11).—Devonian of Bolivia, with 7 new species; ULRICH (28).—Devonian species from Manitoba, with 2 new species; WHITEAVES, Contr. Canad. Pal. i, pp. 281-291, figg.—9 new species from the Clinton, Lower Helderberg, Chemung and Waverley Groups of Pennsylvania: SIMPSON (26).—*Spirifer urbana* and *macbridei*, from the Devonian of Iowa, figured by CALVIN (9).—*Terebratulina iowensis*, n. sp., Devonian, Iowa; CALVIN, Bull. Lab. Iowa, i, p. 174, fig.—Fauna of the St. John Group, Canada, with new species of *Brachiopoda*; MATTHEW, Tr. R. Soc. Canada, ix (4), pp. 39-50.—*Trematobolus*, n. g., St. John Group, New Brunswick; MATTHEW (21).—Lower Devonian *Brachiopoda*, with 4 new species; BÉCLARD, Bull. Soc. Belg. Géol. v, pp. 96-102, figg.

Siluro-Devonian *Pentameridae* of Australia; ETHERIDGE (13).

Silurian: New species from the Trenton and Hudson River Groups of Minnesota, with *Hallina*, n. g., WINCHELL & SCHUCHERT (31).—*Orthis leviensis*, n. sp., and *flabellulum*, J. de C. Sby., from the Lower Silurian of Central Australia; ETHERIDGE (12).

Cambrian fossils of S. Australia, with *Orthisina compta* and *Orthis* (?) *peculiaris*, n. spp.; TATE, Tr. R. Soc. S. Austr. xv, p. 185.

#### IV.—SYSTEMATIC.

##### INARTICULATA.

†*Barroisella*, n. g., type *Lingula subspatula*, Meek & W.; HALL & CLARKE, (17) p. 62, figg.

*Crania anomala*, O.F.M., anatomy; BLOCHMANN (7).

*Discina siegenensis*, p. 95, *anomala*, p. 96, n. spp., Grauwacke of Siegen, KAYSER, JB. k. preuss. geol. Landesanst. 1890, figg.

†*Discinopsis*, n. g., type *Acrotreta* ? *gulielmi*, Matth.; HALL & CLARKE, (17) p. 105, figg.

†*Lindstræmella*, n. subg. of *Discina*, type *L. aspidum*, n. sp., Palæozoic of New York State; HALL & CLARKE, (17) p. 134, figg.

- †*Ehlertella*, n. subg. of *Discina*, type *D. pleurites*, Meek ; HALL & CLARKE, (17) p. 133.  
 †*Roemerella*, n. subg. of *Discina*, type *D. grandis*, Vanux.; HALL & CLARKE, (17) p. 137, fig.  
 †*Tomasina*, n. g., type *Lingula criei*, Dav.; HALL & CLARKE, (17) p. 65, figg.

- 
- †*Trematobolus*, n. g. for *T. insignis*, St. John Group of St. Martins, New Brunswick ; MATTHEW, Can. Rec. v, p. 276, fig. This genus is connected with the *Obolidae*, but differs in having articulate valves. It may be looked on as combining the features of *Siphonotreta*, *Schizambon*, and *Obolus* in its ventral valve, with those of *Obolus*, *Obolella*, and *Orthis* in its dorsal valve.
- 

## ARTICULATA.

## PRODUCTIDÆ.

- †*Chonetes pratti*, Davids., from Carboniferous of W. Australia ; NEWTON, Geol. Mag. 1892, pp. 468, 469, & 542-544, fig.  
 †*C. douvillei*, Devonian of Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 104, fig.; †*C. arcei*, p. 77, *ruecki*, p. 79, *stuebeli*, p. 80, Devonian of Bolivia, ULRICH, (28) figg. : n. spp.  
 †*Chonopectus*, n. g., type *Chonetes fischeri*, Norw. ; HALL & CLARKE, (17) p. 312, fig.  
 †*Chonostrophia*, n. g., type *Chonetes reversa*, Whitf. ; HALL & CLARKE, (17) p. 310, fig.

## STROPHOMENIDÆ.

- †*Billingsella*, n. g., type *Orthis pepina*, Hall ; HALL & CLARKE, (17) p. 230, figg.  
 †*Christiania*, n. g., type *Leptæna subquadrata*, Hall ; HALL & CLARKE, (17) p. 298, fig.  
 †*Dalmanella*, n. sect. of *Orthis*, group of *O. testudinaria*, Dalm.; HALL & CLARKE, (17) p. 205, fig.  
 †*Dinorthis*, n. sect. of *Orthis*, group *O. pectinella*, Emm.; HALL & CLARKE, (17) p. 195, fig.  
 †*Herbertella*, n. sect. of *Orthis*, group *O. sinuata*, Hall ; HALL & CLARKE, (17) p. 198, fig.  
 †*Heterorthis*, n. sect. of *Orthis*, group *O. clytie*, Hall ; HALL & CLARKE, (17) p. 202, figg.  
 †*Kayserella*, n. g., type *Orthis lepida*, Schnur. ; HALL & CLARKE, (17) p. 259, fig.  
 †*Leptella*, n. g., type *Leptæna sordida*, Billings ; HALL & CLARKE, (17) p. 293, fig.

- † *Orthidium*, n. g., type *Orthis gemmicula*, Billings ; HALL & CLARKE, (17) p. 244, fig.
- † *Orthis leviensis*, n. sp., from the Lower Silurian of Central Australia ; ETHERIDGE, (12) p. 24, figg.
- † *Orthotichia*, n. sect. of *Orthis*, group *O. ? morganiana*, Derby ; HALL & CLARKE, (17) p. 213, figg.
- † *Plasiomys*, n. sect. of *Orthis*, group *O. subquadrata*, Hall ; HALL & CLARKE, (17) p. 196, fig.
- † *Plectorthis*, n. sect. of *Orthis*, group of *O. plicatella*, Hall ; HALL & CLARKE, (17) p. 194, figg.
- † *Polytoechia*, n. subg. of *Clitambonites*, type *Hemipronites apicalis*, Whitf. ; HALL & CLARKE, (17) p. 239, fig.
- † *Protorthis*, n. g., type *Orthis billingsi*, Hartt. ; HALL & CLARKE, (17) p. 231, fig.
- † *Rafinesquina*, n. g., type *Leptæna alternata*, Conr. ; HALL & CLARKE, (17) p. 281, fig.

## SPIRIFERIDÆ.

- † *Athyris betencourti*, n. sp., Devonian, Boulogne ; RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 103, fig.
- † *Cyrtina lonquetii*, n. sp., Carboniferous of Boulogne ; RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 105, fig.
- † *Meristella riskowskyi*, n. sp., Devonian of Bolivia ; ULRICH, (28) p. 64, figg.
- † *Spirifer urbana* and *macbridei*, Devonian, Iowa ; figured by CALVIN, Bull. Lab. Iowa, ii, pl. xii.
- † *S. barroisi*, Devonian, Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, p. 102, fig. ; † *S. chuquisaca*, Devonian of Bolivia, ULRICH, (28) p. 65, figg. : n. spp.
- † *Spiriferina moscai*, n. sp., Trias of Balia, Asia Minor ; BITTNER, JB. geol. Reichsanst, xlii, p. 80, fig.
- † *Spirigera tricupii*, n. sp., Trias of Balia, Asia Minor ; BITTNER, JB. geol. Reichsanst. xlii, p. 82, fig.
- † *Thecocyrtella* n. n. for *Cyrtotheca*, Bittner non Salter ; BITTNER, Abh. geol. Reichsanst. xvii, No. 2, p. 15.

## RHYNCHONELLIDÆ.

- † *Pentameridæ* of New South Wales ; ETHERIDGE, Rec. Geol. Surv. N.S.W. iii, pp. 49-60, 2 pls.
- † *Rhynchonella symptychos*, Middle Jurassic of S. E. Tirol, BOESE & FINKELSTEIN, Z. geol. Ges. xlv, p. 300, fig. ; *R. lemeslii*, Devonian, p. 103, *pellati*, Oxfordian, p. 106, of Boulogne, RIGAUX, Mém. Soc. Acad. Boulogne, xiv, figg. : n. spp.

## TEREBRATULIDÆ.

- † *Centronella* (?) *margarida*, Devonian, Matto Grosso, DERBY, Arch. Mus. R. Jan. ix, p. 84; *C. silvetii*, p. 51, *arcei*, p. 53, Devonian of Bolivia, ULRICH, (28) figg. : n. spp.
- † *Dinarella*, n. g., with *D. haueri*, n. sp., Trias of the Alps, BITTNER, Abh. geol. Reichsanst. xvii, No. 2, p. 24, figg.
- Hallina*, n. g. for *H. saffordi*, and *nicolleti*, n. spp., Lower Silurian of Minnesota, WINCHELL & SCHUCHERT, Am. Geol. ix, pp. 291–293.
- † *Notothyris* (?) *smithii*, n. sp., Devonian of Matto Grosso, DERBY, Arch. Mus. R. Jan. ix, p. 81, fig.
- † *Terebratula* *haasi*, p. 287, *vespertilio*, p. 290, Middle Jurassic of S. E. Tirol, n. spp., BOESE & FINKELSTEIN, Z. geol. Ges. xlv, figg.
- † *Terebratulina substriata*, Schloth., in Yorkshire; WALKER, Geol. Mag. 1892, p. 364.
- Waldheimia venosa*, Soland., anatomy with figg.; JOUBIN, Mém. Soc. Zool. v, pp. 554–583.
- † *W. bukowskii*, Trias of Balia, Asia Minor, BITTNER, JB. geol. Reichsanst. xlii, p. 79, fig.; † *W. tesinensis*, Middle Jurassic of S. E. Tirol, BOESE & FINKELSTEIN, Z. geol. Ges. xlv, p. 285, fig. : n. spp.

## THECIDEIDÆ.

- † *Thecidea*: on Yorkshire species; WALKER, Geol. Mag. 1892, p. 548.

## IX. BRYOZOA (POLYZOA).

BY

B. B. WOODWARD, F.G.S., F.R.M.S., &c.

(With kind assistance from R. KIRKPATRICK, Esq., F.Z.S., &c.)

### I.—TITLES.

1. AMI, H. M. Notes and descriptions of some new or hitherto unrecorded species of Fossils from the . . . Ordovician rocks of the Province of Quebec . . . *Bryozoa*. Can. Rec. v, pp. 96-103.
2. BIERBAUER, B. A Check-list of the Palæozoic Fossils of Wisconsin, Minnesota, Iowa, Dakota, and Nebraska. Bull. Minnesota Acad. iii. *Polyzoa*, pp. 222-226.
3. BIZET, E. Catalogue des Mollusques observés à l'état vivant dans le Département de la Somme. Mém. Soc. L. N. Fr. viii. *Bryozoa*, pp. 393-402.
4. BRAEM, F. Die keimblätter der Bryozoen-Knospe. Zool. Anz. xv, pp. 113-115.  
For reply see DAVENPORT (5).
5. DAVENPORT, C. B. The germ-layers in Bryozoan buds. Zool. Anz. xv, pp. 261-263.  
A reply to BRAEM (4).
6. DEMADE, P. Le Statoblaste des Phylactolémates (Bryozoaires d'eau douce) étudié chez l'*Alcyonella fungosa* et la *Cristatella mucedo*. La Cellule, viii, pp. 333-378, 2 pls.
7. HALLEZ, P. Draguages effectués dans le Pas-de-Calais . . . 1888 et 1889. Rev. Biol. ii (1889) [*Bryozoa*], pp. 37 & 38.
8. —. Addition à la liste des Bryozoaires du Boulonnais *Op. cit.* iv (1891), pp. 119 & 120.
9. —. Deuxième supplément à la liste des Bryozoaires du Boulonnais. *Op. cit.* v (1892), pp. 123 & 124.

10. HARMER, S. F. On the nature of the Excretory Processes in Marine *Polyzoa*. Q. J. Micr. Sci. xxxiii, pp. 123-167, 2 pls.
11. HELM, S. *Cordylophora lacustris* and five forms of Animal Life. J. N. Y. Micr. Soc. viii, pp. 43-50, figg.
12. HENNIG, A. H. Studier öfver Bryozoerna i Sveriges Kritsystem. 1. *Cheilostomata*. Act. Lund. xxviii, No. 11, 51 pp., 2 pls.
13. HINCKS, T. Contributions towards a general history of the Marine *Polyzoa*, 1890-91. Appendix [contd.]. Ann. N. H. ix, pp. 327-334.  
Species described in the main work are still misquoted as "n. sp."
14. —. The *Polyzoa* of the St. Lawrence: a study of Arctic forms. T. c. pp. 149-157, 1 pl.
15. KOROTNEV, A. Po voprosu razvitiya priesnovodnuikh mshanok.— Sur la question du développement des Bryozoaires d'eau douce. Zapiski Kiev. x, pp. 393-410, 2 pls.
16. KRAEPELIN, K. Die Deutschen Süßwasser-Bryozoen. II. Entwicklungsgeschichtlicher Theil. Abh. Geb. Hamb. xii, No. 2, 67 pp., 5 pls.
17. NAMIAS, I. Su alcune forme Briozuarie del Mar Rosso. Atti Soc. Mod. xi, pp. 74-77.
18. NEVIANI, A. Contribuzione alla conoscenza dei Briozoi fossili Italiani—Briozoi post-pliocenici del sottosuolo di Livorno. Boll. Soc. geol. Ital. x, pp. 99-148, 1 pl.
19. VINE, G. R. Notes on *Polyzoa* found at Cleethorpes in 1875, 1879, and 1882. Naturalist, 1892, pp. 5-11.
20. —. Notes on *Polyzoa* of the Zones of the Upper Chalk. Rep. Brit. Ass. 1891 (1892), pp. 656-659.
21. WATERS, W. North Italian [fossil] *Bryozoa*. Pt. II. *Cyclostomata*. Q. J. Geol. Soc. xlviii, pp. 153-162, 1 pl.
22. —. Observations on the Gland-like Bodies in the *Bryozoa*. J. L. S. xxiv, pp. 272-278, 1 pl. Abstr. in J. R. Micr. Soc. 1892, p. 777.

## II.—ANATOMY, &c.

Observations on the gland-like bodies in the *Bryozoa*; WATERS (22).—Nature of the excretory processes in Marine *Bryozoa*; HARMER (10).

Development of freshwater *Bryozoa*; KOROTNEV (15).—Development of German freshwater *Bryozoa*; KRAEPELIN (16).—DEMADE (6) concludes that the membrane of the statoblast in *Alcyonella fungosa* and

*Cristat ulla mucedo* is composed of cells which undergo cellular differentiation, whilst the central mass is a tissue during all the periods of its development.

On the germ-layers in Bryozoan buds ; BRAEM (4), DAVENPORT (5).

### III.—DISTRIBUTION.

#### A.—GEOGRAPHICAL.

Lincolnshire : *Bryozoa* found at Cleethorpes ; VINE (19).

Norway : list of *Bryozoa* dredged on the coast ; HERDMANN, P. Liverp. Biol. Soc. vi, pp. 90 & 91.

Boulonnais : list of species ; HALLEZ (7-9).

Somme : *Bryozoa* of the Department of ; BIZET (3).

Red Sea : some species from ; NAMIAS (17).

New Jersey : *Urnatella walkeri*, n. sp. [?], and *Octocella libertus*, n. g. [?], n. sp. [?] ; HELM (11).

List, with figg., of *Bryozoa* of the St. Lawrence ; HINCKS (14).

#### B.—GEOLOGICAL.

Palæontological summary for 1890 : *Bryozoa*, by G. F. DOLLFUS, Ann. Géol. univ. Paris, 1890 (1892), pp. 1039-1049.

Post-pliocene forms from the neighbourhood of Livorno, with 4 new species ; NEVIANI (18).

Tertiary *Cyclostomata* of N. Italy, 22 species, including *Diastopora brendolensis*, *Defrancia brendolensis*, and *Lichenopora* (?) *incrustans*, new ; WATERS (21).

Cretaceous : *Bryozoa* from the Upper Chalk ; VINE (20).—Cretaceous *Bryozoa* of Sweden, with 13 new species ; HENNIG (12).—*Bryozoa* from the Upper Senonian of Irnich, Eifel ; VOGEL, Verh. Ver. Rheinl. xlix, pp. 93-99, fig.—Upper Senonian *Bryozoa* of the Eifel ; VOGEL, Verh. Ver. Rheinl. xlix, pp. 91-99.—*Bryozoa* from the Cretaceous of Schleswig-Holstein ; STOLLY, MT. min. Inst. Kiel, i, pp. 244 & 245.—1 species from the Rolling Downs Beds of Queensland ; JACK & ETHERIDGE, (*ante*, Moll. 193) pp. 441 & 442.

Jurassic species from Yorkshire (List) ; FOX-STRANGWAYS, Mem. Geol. Surv. U. K., Jurassic Rocks, ii, pp. 148 & 200.

Palæozoic : Check-list of Palæozoic *Bryozoa* from Wisconsin, Minnesota, Iowa, Dakota, and Nebraska ; BIERBAUER (2).

Permian *Bryozoa* from the Duchy of Sachsen-Altenburg ; GEINITZ, MT. Osterlande. v, p. 179.

Permo-Carboniferous species, *Polypora*? *smithii*, n. sp., from Queensland ; JACK & ETHERIDGE, (*ante*, Moll., 193) pp. 216-225.

Devonian species from Manitoba, with *Pinacotrypa marginata*, n. sp. ; WHITEAVES, Contr. Can. Pal. i, pp. 277-281, figg.

Ordovician species from the province of Quebec, with *Dicranopora parva*, *Diplotrypa quebecensis*, and *Monotrypa incerta*, n. spp. ; AMI (1).

## IV.—SYSTEMATIC.

(†) is prefixed to fossil forms.

## ENTOPROCTA.

*Urnatella walkerii*, New Jersey; HELM, J. N. Y. Micr. Soc. viii, p. 47, fig., alleged new species; it appears to be a *Pedicellina*, but it is not stated whether it is furnished with a stolon or not.

*Rhabdopleura*: cf. VERMES, sub *HEMICHORDATA*, where this and *Cephalodiscus* will in future be included with *Balanoglossus*.

## ECTOPROCTA.

## CYCLOSTOMATA.

† *Crisia destefanii*, n. sp., Post-pliocene of Livorno; NEVIANI, Boll. Soc. geol. Ital. x, p. 135, fig.

† *Defrancea brendolensis*, n. sp., Tertiary of N. Italy, WATERS, Q. J. Geol. Soc. xlviii, p. 161, fig.

† *Diastopora brendolensis*, n. sp., Tertiary of N. Italy, WATERS, Q. J. Geol. Soc. xlviii, p. 155, fig.

† *Dicranopora parva*, n. sp., Ordovician of Quebec, AMI, Can. Rec. v, p. 99.

† *Diplotrypa quebecensis*, n. sp., Ordovician of Quebec; AMI, Can. Rec. v, p. 100.

† *Entalophora d'anconæ*, n. sp., Post-pliocene of Livorno, NEVIANI, Boll. Soc. geol. Ital. x, p. 143, fig.

† *Idmonea targionii*, n. sp., Post-pliocene of Livorno, NEVIANI, Boll. Soc. geol. Ital. x, p. 139, fig.

† *Lichenopora* (?) *incrustans*, n. sp., Tertiary of N. Italy, WATERS, Q. J. Geol. Soc. xlviii, p. 161, fig.

† *Monotrypa incerta*, n. sp., Ordovician of Quebec, AMI, Can. Rec. v, p. 101.

## CTENOSTOMATA.

*Octocella*, n. g. [?] for *O. libertas*, n. sp. [?], New Jersey; HELM, J. N. Y. Micr. Soc. viii, p. 48, fig. [May be one out of several genera of *Ctenostomata*, e.g., *Cylindroeccium*?, *Bowerbankia*?—not properly defined.]

## CHILOSTOMATA.

† *Cribrilina lævis, quadrisulcata*, n. spp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, pp. 37 & 38, figg.

*Heteroeccium*, n. g. for *Membranipora amplexans*, Hincks; HINCKS, Ann. N. H. ix, p. 332.

- † *Lepralia impressipora*, n. sp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, p. 43, fig.
- † *Membranipora excavata*, n. sp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, p. 18, fig.
- † *Membraniporella aurita*, *juvensis*, n. spp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, pp. 38 & 39, figg.
- † *Monoporella inflata*, n. sp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, p. 40, fig.
- † *Macronella hians*, *vesperugo*, n. spp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, pp. 44 & 45, figg.
- † *Schizoporella carinata*, n. sp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, p. 42, fig.
- † *Smittia adae*, n. sp., Post-pliocene of Livorno, NEVIANI, Boll. Soc. geol. Ital. x, p. 127, fig.
- † *Steganoporella rhomboidalis*, n. sp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, p. 36, fig.
- † *Periteichisma smitti*, p. 25, *ignabergense*, p. 28, n. spp., Cretaceous of Sweden, HENNIG, Act. Lund. xxviii, No. 11, figg.

#### PHYLACTOLÆMATA.

The statoblast has been studied in *Alcyonella fungosa* and *Cristatella mucedo* by DEMADE, La Cellule, viii, pp. 333-378, 2 pls. [For conclusions, see *ante*, Anatomy, &c.]

#### [VERMIFORMIA.]

[Forms sometimes grouped under this heading will for the future be classed with VERMES (*q.v.*).]



## X. CRUSTACEA.

(Including GIGANTOSTRACA AND PANTOPODA.\*)

By R. I. Pocock.

---

### ARRANGEMENT OF RECORD :

CRUSTACEA, S. S.

Titles of Papers, p. 1.

Subject-Index, p. 13.

Systematic, p. 16.

PANTOPODA, p. 32.

GIGANTOSTRACA, p. 33.

---

### I.—TITLES OF PAPERS.

ALCOCK, A. (1) On the Stridulating Apparatus of the Red Ocypode Crab. Ann. N. H. (6) x, p. 336.

——. (2) On the Habits of *Gelasimus annulipes*. T. c. p. 415.

These two papers are reprinted from the Administration Report of the Marine Survey of India for 1891-92.

ALLEN, E. J. (1) Preliminary account of the Nephridia and Body-cavity of the Larva of *Palæmonetes varians*. P. R. Soc. lii, pp. 338-342.

——. (2) On the Minute Structure of the Gills of *Palæmonetes varians*. Q. J. Micr. Sci. xxxiv, pp. 75-84, 1 pl.

AMI, H. M. Additional Notes on the Geology and Palæontology of Ottawa and its Environs. Tr. Ottawa Nat. Club, vi, No. 5, p. 77.

*Ostracoda.*

---

\* Since the GIGANTOSTRACA and PANTOPODA form part of the Marine fauna, and are largely, for this reason, studied systematically by students of Carcinology rather than of Arachnology, it has been considered advisable, on grounds of expediency, to transfer them to that section of the ZOOL. REC. which deals with *Crustacea*.

- ANDREWS, E. A. Notes on the Fauna of Jamaica. Johns Hopk. Univ. Circ. xi.  
*Crustacea*, p. 75.
- AURIVILLIUS, C. W. S. (1) Analyse d'un mémoire intitulé du déguisement des Décapodes Oxyrhynques à l'aide d'adaptations singulières du corps. Ann. Sci. Nat. xiii, pp. 341-348.
- (2) Neue Cirripeden aus dem Atlantischen Indischen und Stillen Ocean. Öfv. Ak. Förh. 1892, No. 3, pp. 123-134.
- BARROIS, T. Liste des Phyllopoies recueillis en Syrie. Rev. Biol. v, pp. 24-29.
- BATESON, W. Supernumerary Claws in Crabs. P. Z. S. 1892, p. 76.
- BENEDEN, P. J. VAN. (1) Le mâle de certains Caligidés et un nouveau genre de cette famille. Bull. Ac. Belg. xxiii, p. 220, &c.
- (2) Quelques nouveaux Caligidés de la côte d'Afrique et de l'Archipel des Açores. *Op. cit.* xxiv, p. 241, &c.
- (3) Une nouvelle famille dans la tribu des Schizopodes. Bull. Ac. Belg. (3) xxii, pp. 444-459.
- BENEDICT, J. E. Decapod *Crustacea* of Kingston Harbour. Johns Hopk. Univ. Circ. xi, p. 77.
- (2) Corystoid Crabs of the Genera *Telmessus* and *Erimacrus*. P. U. S. Nat. Mus. xv, pp. 223-230, pls. xxv-xxvii.
- (3) Preliminary descriptions of Thirty-seven New Species of Hermit Crabs, of the genus *Eupagurus*. *Op. cit.* No. 887, pp. 1-26.
- BERGH, R. S. (1) Die Drehung des Keimstreifens und die Anlage des Dorsalorgans bei *Gammarus pulex*. Zool. Anz. xv, p. 268.
- (2) Zur Entwicklung des Keimstreifens von *Mysis*. T. c. p. 436.
- BERNARD, H. M. (1) The *Apodidae*: a Morphological Study. Nature Series. London (Macmillan & Co.): 1892.
- (2) The Apodemes of *Apus* and the Endophragmal System of *Astacus*. Ann. N. H. (6) x, pp. 68-74, pl. v.
- BERTKAU, P. Lebende *Branchipus grubei*. Verh. Ver. Rheinl. SB. xlviii, pp. 54 & 55.
- BIRGE, E. A. List of *Crustacea Cladocera* from Madison, Wisconsin. Tr. Wisconsin Acad. viii, p. 393, &c., 1 pl.
- BLANCHARD, R., & RICHARD, J. Faune de lacs salés d'Algérie. *Cladocera et Copépodes*. Mém. Soc. Z. Fr. iv, No. 5, pp. 512-535 (1891).  
Omitted from previous Record.
- BOLIVAR, —. Liste de las Crustáceos de España y Portugal del Museo de Madrid. Act. Soc. Esp. xxi, p. 124.
- BORDAGE, —. Myologie des Crustacés Décapodes. CR. Soc. Philom. No. 19, July, pp. 1 & 2 (1892).

BOUVIER, E. L. (1) Sur le développement embryonnaire des Galathéides du genre *Diptychus*. C.R. cxiv, p. 767.

— (2) Sur la graisse du foie des Crustacés Décapodes. Bull. Soc. Philom. (8) iii, pp. 170-174.

— (3) Observations sur les mœurs des Pagures, faites au laboratoire maritime de Saint-Vaast-la-Houque pendant le mois d'Août, 1891. *Op. cit.* iv, pp. 1-9.

— (4) Les *Glaucothoés* sont-elles des Larves de Pagures ? Ann. Sci. Nat. xii, pp. 65-82.

— (5) Sur les Paguriens recueillis dans le Mer Rouge, par M. le Dr. Jousseau. C.R. Soc. Philom. No. 8, p. 1, 1891-92.

No new species.

BRADY, G. S. A Revision of the British Species of Freshwater *Cyclopide* and *Calanidae*. Nat. Hist. Tr. North Durham, xi, pt. 1, p. 68.

BRONN, —. Klassen und Ordnungen des Thier-Reichs. *Arthropoda*, v, pts. 32-34 [On the organization of the Decapod *Crustacea*], pp. 821-896.

BROOKS, W. K., & HERRICK, F. H. Embryology and Metamorphosis. Johns Hopk. Univ. Circ. xi, pp. 65-71.

On *Stenopus*, *Alpheus*, and *Gonodactylus*.

CALDERON Y ARANA, SALV. Notas Carcinologicas. Act. Soc. Esp. xx, pp. 108-110.

CAMERA, C. Ricerche sui Copépodi liberi del Piemonte. Boll. Mus. Zool. Tor. vii, No. 120, pp. 1-13.

No new species.

CAMERANO, L. Recherches sur la force absolue des Muscles des Crustacés Décapodes. Arch. Ital. Biol. xvii, pp. 212, &c.

CANO, G. Sviluppo postembrionale dei Cancridi. Bull. Ent. Ital. xxiii, pp. 146-158.

\*CANU, E. Les Copépodes du Boulonnaise, morphologie, embryologie, taxonomie. Lille (Danel) : 1892, 354 pp.

\*CAPANNI, V. La Daphnia. Reggio Emilia, Tip. Artigianelli, 1892.

CAR, L. Ein Beitrag zur Kenntniss der Copepoden von Triest. Glasnik Naravosl. Druzt. v, pts. 1-4, p. 105, pls. i-iii (1890).

No new species.

CHEVREUX, E. (1) (Quatrième campagne de l'Hirondelle 1888) *Hyale grimaldi* et *Stenothoe dollfusi*, n. spp. Bull. Soc. Z. Fr. xvi, pp. 257-262.

— (2) *Vibilia erratica*, Amphipode pélagique nouveau du littoral des Alpes Maritimes. *Op. cit.* xvii, p. 32.

— (3) Sur le male adulte d'*Hyperia schizogencios*, Stebbing. T. c. p. 233.

1892. [VOL. XXIX.]

- CHEVREUX, E., & BOUVIER, E. L. (1) Voyage de la goëlette "Melita." Note préliminaire sur les Paguriens. Bull. Soc. Z. Fr. xvi, pp. 252, &c. (1891).
- & —. (2) Paguriens de la "Melita." Mém. Soc. Zool. v, pp. 83-144, 3 pls.
- & —. (3) *Perrierella crassipes*, espèce et genre nouveaux d'Amphipode des côtes de France. Bull. Soc. Z. Fr. xvii, p. 50.
- CHEVREUX, G., & GUERNE, J. DE. (1) Sur un espèce nouvelle de *Gammarus* du lac d'Annecy et sur les Amphipodes d'eau douce de la France. C.R. cxiv, p. 1286.
- & —. (2) Description de *Gammarus delebecquei*, n. sp., du lac d'Amiens, suivie de quelques remarques sur les Amphipodes d'eau douce de la France. Bull. Soc. Z. Fr. xvii, p. 136.
- CHILTON, C. (1) Notes on some New Zealand *Amphipoda* and *Isopoda*. Tr. N. Z. Inst. xxiv, pp. 258-269.
- , (2) On a tubicolous Amphipod from Port Jackson. Rec. Austral. Mus. ii, No. 1, pp. 1-6.
- , (3) A new species of *Munna* from New Zealand. Ann. N. H. (6) x, p. 1, pls. i & ii.
- CHYZER, C. Ueber die Estherien Ungarns. Math. Nat. Ber. Ung. x, pp. 119-135.  
No new species.
- CLAUS, C. (1) Ueber die gattung *Miracia*, Dana, mit besonderer Berücksichtigung ihres Augen-Baues. Arb. z. Inst. Wien, ix, pp. 267-284.  
[Omitted from Zool. Rec. xxviii.]
- , (2) Beiträge zur Kenntnis der Süsswasser-Ostracoden. *Op. cit.* x, pp. 147-216 (1892).  
Anatomical and Systematic.
- CUÉNOT, L. Les organes Phagocytaires chez quelques invertébrés. Arch. Z. expér. p. ix.  
On *Astacus*.
- CUNNINGHAM, J. T. Observations on the Larvæ of *Palinurus vulgaris*. Rep. Brit. Ass. 1891, p. 867.
- DAHL, F. Die Gattung *Copilia* (*Saphirinella*). Zool. Jahrb. vi, pp. 499-522, pl. xxiv.  
No new species.
- DELLA VALLE, A. Intorno agli organi di escrezioni di alcuni Gammarini. Bull. Soc. Nat. Napoli (1) iii, pl. i, pp. 269-272.
- DE MAN, J. G. (1) Decapoden des Indischen Archipels in Max Weber's Zool. Ergebnisse, &c. Vol. II. Leiden (E. J. Brill) : 1892.

- [DE MAN, J. G.] (2) Carcinological Studies in the Leyden Museum. Notes Leyd. Mus. xiv, pp. 225-264.
- DEMOOR, J. Recherches sur la marche des Crustacés (concluded). Arch. Z. exper. (2) ix, pp. 497-502.
- DOLLFUS, A. (1) Crustacés Isopodes terrestres du voyage de M. Ch. Alluaud dans le territoire d'Assinie. Ann. Soc. Ent. Fr. lxi, pp. 385-390, pl. vii.
- . (2) Catalogue raisonné des Isopodes terrestres de l'Espagne. An. Soc. Esp. (2) i, pp. 161-190.
- . (3) Note sur les Isopodes terrestres et fluviatiles de Syrie. Rev. Biol. iv, pp. 1-15 (author's copy).
- . (4) Tableaux Synoptiques de la Faune Française. Le genre *Armadillidium* (Crustacés Isopodes terrestres). Feuille. Nat. xxii, No. 259, pp. 1-18.
- . (5) Sur deux Isopodés terrestres d'Islande recueillis par M. Gaston Burdett. Bull. Soc. Z. Fr. xvii, p. 231.
- DURRANT, H. Pond Life Studies. *Cypris tristriata*. Sci. Goss. 1892, pp. 267-269.
- EDWARDS, A. MILNE, & BOUVIER, E. L. (1) Observations préliminaires sur les Paguriens recueillis par les expéditions du Travailleur et du Talisman. Ann. Sci. Nat. xiii, pp. 185-226.
- & ——. (2) Note sur un Pagure des grandes profondeurs de la mer (*Parapagurus pilosimanus*). Congr. Internat. Zool. 1892, pl. i, pp. 1-15.
- & ——. (3) Sur le développement embryonnaire des Galathéides abyssaux du genre *Diptychus*. C.R. 1891-92, No. 10, p. 1.
- ETHERIDGE, R. (1) On *Leaia mitchelli*, Eth., from the Upper Coal Measures of the Newcastle District. P. Linn. Soc. N.S.W. vii, pp. 307 & 308.
- . (2) Notes on Queensland Cretaceous *Crustacea*. P. Linn. Soc. N.S.W. vii, pp. 305 & 306.
- . (3) *Hymenocaris salteri*, McCoy. Rec. Geol. Surv. N.S.W. 1892, pt. 1, pp. 5-8, pl. iv.
- \*FORBES, S. A. On some Lake Superior *Entomostraca*. Rep. U. S. Fish. Comm. xv (1891), pp. 701-718 [Omitted from Zool. Rec. xxviii.]  
4 new species.
- FRÉDÉRICQ, L. Nouvelles recherches sur l'autotomie chez le Crabe. Arch. Biol. xii, pp. 169, &c.
- GARSTANG, J. W. (1) Notes on the Marine Invertebrate fauna of Plymouth for 1892. J. Mar. Biol. Ass. ii, No. 4. *Crustacea*, p. 337.

- [GARSTANG, J. W.] (2) On some New or Rare Marine Animals recently discovered on the Coast of Devonshire. Tr. Devon Ass. xxiv, *Crustacea*, pp. 384 & 385.
- GAVINO, C. Crustacei Brachiuri ed Anomuri raccolti nel viaggio della "Vettor Pisani" intorno al globo. Boll. Soc. Nat. Napoli (1) iii, pt. 1, pp. 79-105, & pt. 2, pp. 169-288.
- GIARD, A., & BONNIER, J. Sur le *Cerataspis petiti*, Guér., et sur la position systématique du genre *Cerataspis*, Gray. C.R. cxiv, p. 1029.
- GIESBRECHT, W. Systematik und Faunistik der Pelagischen Copepoden der Golfes von Neapel, &c. Berlin (R. Friedländer & Sohn): 1892.
- GOURRET, C. Sur un variété de *Nebalia bipes*. Rec. Z. Suisse, v, p. 93.
- GROBEN, C. (1) Ueber die Stammesverwandtschaft der Crustaceen. Verh. z.-b. Wien, xlii, pp. 11, &c.
- . (2) Zur Kenntniss der Stammbaumer und der Systems der Crustaceen. SB. Ak. Wien, 1892, pl. i, pp. 237, &c.
- GROOM, T. (1) On the Early Development of *Cirripedia*. P. R. Soc. lii, pp. 158-162.
- . (2) On the Orientation of *Sacculina*. P. Camb. Phil. Soc. vii, p. 160.
- [Omitted from Zool. Rec. xxviii.]
- GUERNE, JULES DE. (1) Sur deux Phyllopoques nouveaux pour la faune des eaux-douces de Madagascar. Bull. Soc. Ent. Fr. 1892, p. 1.
- . (2) Sur *Cryptopus defranci*, Latr., Myside nouveau pour la faune der Açores. T. c. p. lvi.
- . (3) Un Ostracode nouveau pour la faune française : La distribution géographique de *Cypris bispinosa*, Luc. Rev. Biol. iv, pp. 518 & 519.
- GUERNE, J. DE, & RICHARD, J. (1) Sur la faune des eaux douces de l'Islande. C.R. cxiv, p. 310.
- Entomostraca.*
- . (2) Cladocères et Copépodes d'eau douce des environs de Rufisque. Mém. Soc. Zool. v, pp. 526-538.
- HÄCKER, V. (1) Ueber specifische Variation bei Arthropoden im Besonderen über die Schutzanpassungen bei Krabben. Ber. Ges. Freiburg, vi, pt. 3, pp. 90-100.
- . (2) Die Eibildung bei Cyclops und Canthocamptus. Zool. Jahrb. v, pp. 211-248, 1 pl.
- HANSEN, H. J. *Rhizorhina ampeliscæ*, n. g. & sp. En ny til *Herpyllobiidae*, n. fam. høvede Copepod, snyltende paa *Ampelisca levigata*, Lilljb. Ent. Med. 1892, pp. 207-234, pl. iii.

- HEIM, F. (1) Études sur le sang des Crustacés Décapodes suivies d'un Essai sur le rôle des pigments. Ann. Soc. Ent. Fr. lxi, pp. 155-270.
- . (2) Sur les pigments des œufs de Crustacés. C.R. Soc. Biol. 1892, p. 467.
- . (3) Sur la matière colorante bleue du Sang des Crustacés. C.R. cxiv, p. 771.
- . (4) Les œufs des Crustacés contenant des ferments actifs. Bull. Soc. Ent. Fr. 1891, pp. cxvi.
- [Omitted from Zool. Rec. xxviii.]
- ⑤——. (5) Etudes sur le sang der Crustacés Décapodes. Recherches sur les Diptero-carpacées. Paris (Chamerot & Renouard): 1892.
- HENNEGUY, F., & THÉLOHAN, P. Sur un Sporozoaire parasite des muscles des Crustacés Décapodes. C.R. Soc. Biol. 1892, p. 585, and C.R. cxiv, p. 1552; Trans. Ann. N. H. (6) x, p. 342.
- HILGENDORF, F. (1) Eine neue ostafrikanische Susswasser-Krabbe (*Telphusa emini*). SB. nat. Fr. 1892, No. 1, pp. 11-13.
- . (2) Eine neue *Brachynotus*-Art aus Aden (*Br. harpax*). Op. cit. No. 4, pp. 37-40.
- IDE, M. (1) Glandes cutanées à canaux intracellulaires chez les Crustacés Edriophthalmes. La Cellule, vii, pp. 345-372. Abstr. in J. R. Micr. Sci. 1892, pt. 3, p. 364.
- . (2) Le tube digestif des Edriophthalmes. La Cellule, viii, pp. 97-204.
- IMHOF, O. E. Die Zusammensetzung der pelagischen Fauna der Süßwasserbecken. Biol. Centralbl. xii, pp. 171, &c.
- Crustacea, pp. 178-182.
- ISHIKAWA, C. Studies on Reproduction Elements. 1. Spermatogenesis, Orogenesis, and Fertilization in *Diaptomus*. J. Coll. Sci. Japan, v, pp. 1-34.
- IVES, J. E. . . . Crustaceans collected by the West Greenland Expedition of 1891. P. Ac. Philad. 1891, pl. iii, p. 481.
- [Omitted from Zool. Rec. xxviii.] No new species.
- JOLYET, E., & VIALLANES, H. Recherches physiologiques sur le système nerveux accélérateur et modérateur du cœur chez le Crabe. Ann. Sci. Nat. xiv, pp. 387-404.
- JONES, T. RUPERT, & WOODWARD, HENRY. A Monograph of the British Palæozoic *Phyllopoda* (*Phyllocarida*, Packard). Pt. ii. Some bivalved and univalved species. Palæontographical Society for 1892, pp. 73-124.
- JONES, T. RUPERT, & KIRKBY, J. W. On Carboniferous *Ostracoda* from Mongolia. Ann. N. H. (6) ix, pp. 302-307, pl. xvi.
- No new species.

- JOURDAIN, S. Sur quelques points de l'embryogénie de l'*Oniscus murarius*, Cuv., et du *Porcellio scaber*, Leach. C.R. cxiv, p. 428.
- KAFKA, J. Die Fauna des Böhmisches Teiche. Arch. naturw. Landesforsch. Böhmen, viii, No. 2, pp. 1-115.  
*Crustacea*, pp. 110-112.
- KAUFMAN, A. Ueber die Gattung *Acanthopus* und eine neue Susswassercytheride. Zool. Anz. xv, pp. 393-395.
- KERHERVÉ, L. B. De l'apparition provoquée des éhippies chez les Daphnies (*Daphnia magna*). Mém. Soc. Zool. v, pp. 227-236.
- KLOCKE, E. Ein neuer *Pleuroxus*. Zool. Anz. xv, pp. 188 & 189.
- KOCHS, W. Versuche über die Künstliche vermehrung Kleiner Crustaceen. Biol. Centralbl. xii, p. 599.
- KÖHLER, M. Recherches sur la cavité générale et sur l'appareil excréteur des Cirripèdes. C.R. cxiv, p. 1214.
- KELBEL, K. (1) Ein neuer ostasiatisches Flusskrebs. Anz. Ak. Wien, xviii, pp. 176 & 177.  
— (2) Beiträge zur Kenntniss der Crustaceen der Canarischen Inseln. Ann. Hofmuseum Wien, vii, No. 3, pp. 105-116.  
2 new species.
- KOJEVNIKOV, G. La faune de la mer Baltique orientale et les problèmes des explorations prochaines de cette faune. Congr. Internat. Zool. 1892, pt. 1, p. 132.
- KOWALEVSKY, A. Ein Beitrag zur Kenntniss des Excretions-organe des Pantopoden. Mem. Ac. Pétersb. xxxviii, No. 12, pp. 1-8, 1 pl.
- KRAUSE, AUREL. Neue Ostrakoden aus Märkischen Silurgeschieben. Z. geol. Ges. 1892, pp. 383-399, pls. xxi & xxii.
- LANDÉ, A. Quelques remarques sur les Cyclopides. Mém. Soc. Zool. v, pp. 156-173.
- LANG, ARNOLD. Lehrbuch der Vergleichenden Anatomie, &c. Jena (Fischer): 1892.
- LEIENKLAUS, E. Ostracoden des nordwestdeutschen Tertiärs. CB. Ver. Rheinl. 1892, pt. 1, pp. 58 & 59.  
No new species.
- LEBEDINSKI, J. [On the Development of *Eriphia*.] Zapiski. Novoross. Obsch. Estestv. xvii, pp. 137-256.  
Printed entirely in Russian.
- McMURRICH, J. P. The Formation of the Germ-layers in the Isopod *Crustacea*. Zool. Anz. xv, p. 271.
- MARCHAL, P. (1) Note préliminaire sur l'appareil excréteur des Pagurides et des Palinurides. Bull. Soc. Z. Fr. xvi, p. 57 (1891).  
— (2) Sur un Pagure habitant une coquille sénestre (*Neptunea contraria*, Chem.). T. c. p. 267.

[MARCHAL, P.] (3) Recherches anatomiques et physiologiques sur l'appareil excréteur des Crustacés Décapodes. Arch. Z. expér. (2) x, pp. 57-275, 9 pls.

MARSH, C. D. On the Deep Water Crustacea of Green Lake. Tr. Wisconsin Acad. viii, pp. 211-213.

No new species.

MAUPAS, M. Sur le *Belisarius viguieri*, nouveau Copépode d'eau douce. C.R. cxv, p. 132.

MONIEZ, R. Faune des lacs salés d'Algérie (Ostracodes). Mém. Soc. Zool. iv, pp. 246-257.

[Omitted from Zool. Rec. xxviii.] 2 new species.

NATHORST, —. Om några mollusker och Ostrakoder från grartära sötvattensflagringar i Ryssland och Tyskland. Cefv. Ak. Förh. 1892, p. 425.

No new species.

NORMAN, A. M. (1) British *Schizopoda* of the Families *Lophogastridae* and *Euphausiidae*. Ann. N. H. (6) ix, pp. 454-464.

No new species.

— (2) On British *Mysidæ*, a family of Crustacea Schizopoda. Op. cit. x, pp. 143-166 & 242-263.

2 new species and 1 new genus.

— (3) Rare Crustacea on the Yorkshire Coast. Naturalist, 1892, pp. 175 & 176.

Occurrence of *Thysanoessa longicaudata* and *Nematoscelis megalops*.

NUSBAUM, J. Zur Kenntniss der Wurmerfauna und Crustaceenfauna Polens. Biol. Centralbl. xii, pp. 54, &c.

*Cyclops*, p. 57. No new species.

ORTMANN, A. (1) Die Decapoden-Krebse des Strassburger Museums. No. III. Die Abtheilungen der Reptantia, Boas: *Homaridae*, *Loricata*, and *Thalassinidea*. Zool. Jahrb. Syst. vi, pp. 1-57.

— (2) No. IV. Die Abtheilungen *Galatheaidea* und *Paguridea*. T. c. pp. 241-326.

— (3) Die Decapoden-Krebse des Strassburger Museums. No. v. Die Abtheilungen *Hippidea*, *Dromidea*, und *Oxystomata*. T. c. pp. 532-588, 1 pl.

OSORIO, B. (1) Note sur quelques espèces de Crustacés de l'île St. Thomé, îlet des Rolas et Angola. J. Sci. Lisb. (2) ii, pp. 140 & 141.

No new species.

\* — (2) Nuova Contribuição para a fauna carcinologica da ilha de St. Thomé. T. c. pp. 199-204.

1 new species.

- OSTROUMOFF, A. Note sur la distribution de *Balanus eburneus*, Gould.  
Zool. Anz. p. 160.
- PARKER, W. N. Note on abnormalities in the Crayfish. Ann. N. H.  
(6) ix, pp. 181 & 182.
- POPPE, S. A., & RICHARD, J. Description du *Diaptomus schmakeri*,  
n. sp., recueilli par M. Schmacker dans le lac Tahoo (China). Bull.  
Soc. Z. Fr. xvii, p. 149.
- POUCHET, G. Contribution à l'histoire des *Cyamus*. J. de l'Anat.  
Phys. 1892, pp. 99-108.
- RANCE, C. E. DE. Note on the discovery of *Estheria minuta* (var.  
*Brodeiana*) in the New Red Sandstone. Rep. Brit. Ass. 1891, p. 644.
- RATH, O. VOM. Ueber die von C. Claus beschriebene Nervenendigung  
in den Sinneshaaren der Crustaceen. Zool. Anz. xv, p. 96.
- RATHBUN, MARY J. Catalogue of the Crabs of the family *Pericerida*,  
in the U. S. National Museum. P. U. S. Nat. Mus. xv, pp. 231-277,  
pls. xxviii-xl.
- RICHARD, J. (1) Sur l'œil latéral des Copépodes du genre *Pleuromma*.  
Zool. Anz. xv, p. 400.
- . (2) Sur la présence d'un Cysticercoïd chez un *Calanide* d'eau  
douce. Bull. Soc. Z. Fr. xvii, p. 17.
- . (3) Sur l'identité des genres *Ilyopsyllus*, Brady & Robertson,  
et *Abacola*, Edwards; description de *I. jousseaumei*, n. sp. T. c.  
p. 69.
- . (4) Sur quelques Entomostracés de l'île d'Elbe et de l'île de  
Monte Cristo. T. c. p. 225.
- No new species.
- . (5) Sur la distribution géographique des Cladocera. Congr.  
Internat. Zool. 1892, pt. 1 (second half), pp. 9-23.
- . (6) *Grimaldina brazzai*, *Guernella raphaelis*, *Monodaphnia*  
*mocquerysi*, Cladocères nouveaux du Congo. Mém. Soc. Zool. v,  
pp. 213-226.
- . (7) Recherches sur le système glandulaire et sur le système  
nerveux des Copépodes libres d'eau douce suivies d'une revision des  
espèces de ce groupe qui vivent en France. Ann. Sci. Nat. xii,  
pp. 113-260.
- No new species.
- \*——. (8) Sur les Entomostracés des eaux douces du Chili. Act. Soc.  
Sci. Chili, ii, pp. 188 & 189.
- \*RISTORI, G. (1) Note di Carcinologie pliocenica. Atti Soc. Tosc.  
Proc. Verb. viii, pp. 86-89.
- \*——. (2) Resti di Crostacei nel pliocene dell' Isola di Pianosa. T. c.  
p. 90.

ROBERTSON, D. (1) A second contribution towards a catalogue of the *Amphipoda* and *Isopoda* of the Firth of Clyde and West of Scotland. P. N. H. Soc. Glasg. iii, pt. 3, pp. 199–223.

— (2) On some recent Marine *Ostracoda*, dredged in Granton Harbour. T. c. pt. 2, pp. 196–198.

No new species.

ROBINSON, MARGARET. On the *Nauplius*-Eye persisting in some *Decapoda*. Q. J. Micr. Sci. xxxiii, p. 283, 1 pl.

SARS, G. O. An Account of the *Crustacea* of Norway, with short descriptions and figures of all the Species. Vol. I. *Amphipoda*; parts 10–15. Families *Amphilochidae*, *Stenothoidae*, *Leucothoidae*, and *Ædiceridae*.

SAUVAGE, H. E. Note sur les Crustacés Jurassiques supérieurs du Boulonnais. Ann. Sci. Nat. xii, 83 pp.

6 new species of *Decapoda*.

SCHALFÉEF, P. Carcinologische Bemerkungen aus dem Zoologischen Museum der Kais. Akademie der Wissenschaften. Bull. Pétersb. xxxv, pp. 331–342.

SCHMEIL, OTTO. Deutschlands freilebende Süßwasser Copepoden: pt. 1, *Cyclopidae*. Bibl. Zool. xi, 8 pls.

No new species.

SCHNEIDER, A. Sur l'existence d'artères laterales chez les Amphipodes. Tabl. Zool. ii, p. 213, pl. xxxv.

SCOTT, T. (1) On some new and rare *Crustacea* from the Firth of Forth. Ann. N. H. (6) x, p. 201, pls. xv & xvi.

3 species recorded, of which one, a *Lichomolgus*, is new.

— (2) Notes on *Rhincalanus gigas*, Brady, and *Ectinosoma atlanticum*, Brady & Robertson. P. N. H. Soc. Glasg. iii, p. 264.

— (3) The Land and Freshwater *Crustacea* of the district around Edinburgh. P. R. Soc. Edinb. 1892, pp. 74–81.

— (4) Is *Amphithopsis latipes* a commensal? Ann. Scott. Nat. Hist. Soc. 1892, p. 141.

— (5) *Diaptomus castor* in the Braid Ponds, near Edinburgh. T. c. p. 202.

— (6) *Modiolicola insignis* in the Firth of Forth. T. c. p. 272.

— (7) *Iliocryptus sordidus* in the Loch End Loch, Edinburgh. T. c. p. 273.

— (8) *Argissa (Syrrhoe) hamatipes*, Norman, in the Firth of Forth. T. c. p. 272.

— (9) Notes on some Freshwater, Brackishwater, and Marine *Entomostraca*, new to the Fauna of Orkney. P. N. H. Soc. Glasg. iii, pt. 2, pp. 91–100.

SCOTT, ANDREW. Notes on *Cecrops latreillei*, Leach, and *Læmargus muricatus*, Kr. *T. c.* p. 266.

SCOTT, T. & A. New and rare *Crustacea* from the East Coast of Scotland. *Ann. Scott. Nat. Hist. Soc.* 1892, No. 3, pp. 149-156.

SCOURFIELD, D. J. On British *Cladocera*. *J. Quek. Club* (2) v, p. 63.

SHARP, B. On *Hippa emerita*. *P. Ac. Philad.* 1892, pp. 327 & 328.

SOWINSKY, B. Matériaux pour servir à l'étude des Crustacés d'eau douce dans la partie sud-occidentale de la Russie. *Zapiski. Kiev*, xi, pp. 107-171.

Printed in Russian.

ST. HILAIRE, C. DE. Sur la résorption chez l'écrevisse. *Bull. Ac. Belg.* xxiv, pp. 506, &c.

STUHLMANN, F. Zur Kenntniss der Fauna central-africanischer Seen. *Zool. Jahrb.* vi, pp. 152-154.

THOMSON, G. M. On the Occurrence of Two Species of *Cumacea* in New Zealand. *J. L. S.* xxiv, p. 263.

ULRICH, E. O. New Lower Silurian *Ostracoda*. No. 1. *Am. Geol.* x, No. 5, pp. 263-270, pl. x.

VIALLANES, M. H. (1) Recherches anatomiques et physiologiques sur l'œil composé des Arthropodes. 1. La morphologie de l'œil de la Langouste. *Ann. Sci. Nat.* xiii, pp. 349-384, 2 pls.

— (2) Contributions à l'histologie du système nerveux des Invertébrés. La lame ganglionnaire de la Langouste. *T. c.* pp. 385-398.

VIGUIER, C. L'héliotropisme des *Nauplius*. *C.R.* cxiv, p. 1489.

VOIGT, W. *Synapticola teres*, n. g. & sp., ein parasitischen Copépode aus *Synapta kefersteinii*. *Z. wiss. Zool.* liii, pp. 31-42.

WAGNER, C. Études sur le développement des Amphipodes : cinquième partie, Développement de la *Melita palmata*. *Bull. Mosc.* 1891 (n.s.) v, p. 401, pls. ix & x.

WALKER, A. O. (1) Note on some Habits of *Crustacea*. *Tr. Biol. Soc. Liverpool*, iv, p. 84 (1890).

— (2) Report on the Higher *Crustacea* collected [in Liverpool Bay] during 1889. *T. c.* p. 239.

— (3) Revision of the *Podophthalmata* and *Cumacea* of Liverpool Bay. *T. c.* pp. 26-104.

No new species.

— (4) The *Lysianassidae* of the British Sessile-eyed *Crustacea*, Bate & Westwood. *Ann. N. H.* (6) ix, pp. 134-138.

WEBER, MAX. Die Süsswasser-Crustaceen des Indischen Archipels, nebst bemerkungen über die Süsswasser-Fauna im Allgemeinen. In Max Weber's *Zool. Ergebnisse*, &c. Vol. II. Leiden : E. J. Brill.

- WELDON, W. F. R. (1) Certain Correlated Variations in *Crangon vulgaris*. P. R. Soc. li, pp. 2-21.
- (2) The Formation of Germ-layers in *Crangon vulgaris*. Q. J. Micr. Sci. xxxiii, pp. 343-363, 3 pls.
- WELTNER, W. Nachtrage zur Fauna von Helgoland. III. Zur Cirripeden fauna von Helgoland. Zool. Jahrb. vi, pp. 453-455.
- WHITEAVES, J. F. Description of a New Genus and Species of Phyllocarid *Crustacea* from the Middle Cambrian of Mount Stephen. Can. Rec. v, No. 4, pp. 205-208.
- WOOD-MASON, J., & ALCOCK, A. (1) Natural History Notes from H.M. Marine Steamer "Investigator," &c. Ann. N. H. (6) ix, pp. 265-275, 2 pls.
- & — (2) Natural History Notes, &c. T. c. pp. 358-370.
- WOODWARD, H. Notes on a New Decapodous Crustacean, *Prosopon etheridgei*, H. Woodw., from the Cretaceous of Queensland. P. Linn. Soc. N.S.W. vii, pp. 301-304, pl. iv.
- ZSCHOKKE, F. Dei Fortpflanzungsthätigkeit der Cladoceren der Hochgebirgseen. Festschr. z. 70. Geburts. R. Leuckart, pp. 396-404.

## II.—SUBJECT INDEX TO PAPERS ON ANATOMY, PHYSIOLOGY, EMBRYOLOGY, DISTRIBUTION, &c.

### 1. EMBRYOLOGY and METAMORPHOSIS.

Pigment of the eggs in *Decapoda*; HEIM (2).—Active ferments in eggs of *Crustacea*; HEIM (4).—Genesis of the sperm and ova and fertilization in *Diaptomus*; ISHIKAWA.—Structure of ova in *Cyclops* and *Canthocamptus*; HÄCKER.

Reproductive activity of *Cladocera*; ZSCHOKKE.

Parthenogenesis in *Daphnia*; KERHERVÉ.

Artificial reproduction of small *Crustacea*; KOCHS.

Development of *Eriphia*; LEBEDINSKI.—Embryology and Metamorphoses of *Stenopus*, *Alpheus*, and *Gonodactylus*; BROOKS & HERRICK. Development of embryo of *Diptychus* (*Galatheidæ*); BOUVIER (1), and EDWARDS & BOUVIER.—Formation of germ layers in *Crangon vulgaris*; WELDON.—Development and torsion of the germinal streak in *Gammarus*; BERGH (1 & 2).—Germ-layers in *Isopoda*; McMURRICH.—Embryology of *Oniscidæ*; JOURDAIN.—Early development of *Cirripedia*; GROOM.—Postembryonal development of Crabs; CANO.—Development of *Amphipoda*; WAGNER.—On the larvæ of *Palinurus*; CUNNINGHAM.

### 2. CIRCULATORY SYSTEM.

Blood of *Decapoda*; HEIM (1, 3, 5). — Arteries of *Amphipoda*; SCHNEIDER.

## 3. MUSCULAR SYSTEM.

Muscles of *Decapoda*; BORDAGE.—Strength of muscles in *Decapoda*; CAMERANO.

## 4. NUTRITION, EXCRETORY ORGANS, &amp;c.

Digestion of the Crayfish; ST. HILAIRE.—On the fat of the liver in *Decapoda*; BOUVIER.—On the Digestive Tract of *Edriophthalmia*; IDE.

Excretory Organs: On the body-cavity and excretory organs of *Cirripedia*; KOEHLER.—On the body-cavity and Nephridia of the larva of *Palæmonetes*; ALLEN.—Excretory organs of *Gammarus*; DELLA VALLE.—Excretory organs of *Paguridae* and *Decapoda*; MARCHAL (1, 3).

## 5. NERVOUS SYSTEM AND ORGANS OF SENSE.

On the nervous system of the heart in the Crab; JOLYET & VIALLANES.—Nervous terminations of the sensory hairs; RATH.—Nervous and glandular systems of freshwater *Copepoda*; RICHARD.—Nervous system of *Palinurus*; VIALLANES.

Lateral eyes of *Copepoda*; RICHARD.—Structure of eyes of *Miracia*; CLAUS.—Nauplius-eye of Decapods; ROBINSON.—Eye of *Palinurus*; VIALLANES.

## 6. ANATOMY AND MISCELLANEOUS SUBJECTS.

Phylogeny and classification of *Crustacea*; BERNARD, GROBBEN (1, 2).

General comparative anatomy; LANG.—Organization of *Decapoda*; BRONN.—Internal skeleton of *Apus* and *Astacus*; BERNARD.—Morphology of freshwater *Ostracoda*; CLAUS.—Cutaneous glands of *Edriophthalmia*; IDE.—Structure of branchiæ in *Palæmonetes*; ALLEN.

Abnormalities of Crayfish; PARKER.—Additional claws in Crabs; BATESON.

Variations in *Crangon vulgaris*; WELDON.

Orientation of *Sacculina*; GROOM (2).—Heliotropism of *Nauplius*; VIGUIER.

On the presence of Cysticeroid in freshwater *Calanidae*; RICHARD.

Phagocytes of *Astacus*; CUÉNOT.

Parasites (*Sporozoa*) in the muscles of *Decapoda*; HENNEGUY & THÉLOHAN.

Habits, Instincts, &c.: Movements of *Crustacea*; DEMOOR.—Decorative instinct of *Oxyrhyncha*; AURIVILLIUS (1).—Protective adaptation in Crabs; HÄCKER.—Autotomy of Crabs; FRÉDERICQ.—*Pagurus* in a sinistral shell; MARCHAL.—Habits of *Gelasimus*; ALCOCK (2): *Ocypoda*; ALCOCK (1): of *Pagurus*; BOUVIER (3): of *Hippa emerita*; SHARP: of *Oniscus*, &c.; WALKER (1).—History of *Cyamus*; POUCHET.—Natural History of *Daphnia*; CAPANNI.—Remarks on the *Cyclopidae*; LANDÉ.—Living *Branchipus*; BERTKAU.

## 7. PALEONTOLOGY.

Palæozoic *Phyllopoda* ; JONES & WOODWARD.  
 Middle Cambrian : *Phyllopoda* ; WHITEAVES.  
 Lower Silurian : *Ostracoda* ; ULRICH.—Silurian : *Ostracoda* ; KRAUSE.  
 Carboniferous *Ostracoda* from Mongolia ; JONES & KIRKBY.  
 Upper Jurassic *Crustacea* of the Boulonnais ; SAUVAGE.  
 Pliocene *Crustacea* ; RISTORI (1 & 2).  
 Tertiary *Ostracoda* ; LEIENKLAUS.

## 8. FAUNISTIC.

Pelagic elements in the fauna of freshwater lakes ; IMHOF.  
 Observations on marine and freshwater Crustaceans ; MAX WEBER.

## a. Holarctic Region.

Britain : *Mysidæ* ; NORMAN (1, 2) : freshwater *Cyclopidae* and *Calanidae* ;  
 BRADY : *Cladocera* ; SCOURFIELD.—Edinburgh and the Firth of Forth :  
 SCOTT (1, 3, 5-8).—Granton : *Ostracoda* ; ROBERTSON (2).—Firth of Clyde :  
*Amphipoda* and *Isopoda* ; ROBERTSON (1).—Orkney : *Entomostraca* ;  
 SCOTT (9).—Yorkshire : rare *Crustacea* ; NORMAN (3).—Liverpool Bay :  
*Podophthalmata* and *Cumacea* ; WALKER (2, 3).—Plymouth and Coast  
 of Devonshire : *Crustacea* ; GARSTANG (1 & 2).

Iceland : *Isopoda* ; DOLLFUS (5) : freshwater forms ; GUERNE &  
 RICHARD.

Norway : *Amphipoda* ; SARS.

Heligoland : *Cirripedia* ; WELTNER.

Eastern Baltic : KOJEVNIKOV.

Germany : free-living, freshwater *Copepoda* ; SCHMEIL.

France : freshwater *Copepoda* ; RICHARD (7) : *Ostracoda* ; GUERNE  
 (3) : *Isopoda* ; DOLLFUS (4) : *Amphipoda* ; CHEVREUX & BOUVIER  
 (3), CHEVREUX & GUERNE (1, 2).

Hungary : *Ostracoda* ; CHYZER.—Bohemia : pond-life ; KAFKA.

Poland : NUSBAUM.

Russia : *Ostracoda* ; NATHORST.—S. W. of Russia : freshwater *Crus-*  
*tacea* ; SOWINSKY.—Black Sea ; OSTROUMOFF.

Mediterranean, &c. : *Paguridae* ; EDWARDS & BOUVIER.—Island of Elba  
 and Monte Christo : *Entomostraca* ; RICHARD (4).—Triest : *Copepoda* ;  
 CAR.—Gulf of Naples : *Copepoda* ; GIESBRECHT.

Spain : *Isopoda* ; DOLLFUS (2).—Spain and Portugal ; higher *Crustacea* ;  
 BOLIVAR.

Algeria : *Ostracoda* ; MONIEZ : *Cladocera* and *Copepoda* ; BLANCHARD  
 & RICHARD.

Syria : *Phyllopoda* ; BARROIS : *Isopoda* ; DOLLFUS (3).

Azores : *Cryptopus* recorded ; GUERNE (2).

Canary Islands : KÆLBEL.

Senegal : *Entomostraca* ; GUERNE & RICHARD (2).

Japan : ORTMANN (1-3).

West Greenland : IVES.

Wisconsin : *Cladocera* ; BIRGE : Deep-water *Crustacea* of Green Lake ; MARSH.

#### b. *Ethiopian Region.*

African Lakes ; STUHLMANN.

St. Thomas (Gulf of Guinea) and Angola : OSORIO.—Assinie (W. Africa) : *Isopoda* ; DOLLFUS (1).

Red Sea : *Paguridae* ; BOUVIER (5).

Madagascar : *Phyllopoda* ; GUERNE (1).

#### c. *Indo-Pacific Region.*

Indian Seas : WOOD-MASON & ALCOCK.—Indian Archipelago : Fresh-water forms ; MAX WEBER.—Indo-Malaya and Austro-Malaya : *Decapoda* ; DE MAN.—New Zealand : *Cumacea* ; THOMSON.

#### d. *Neotropical Region.*

Jamaica : higher *Crustacea* ; ANDREWS, BENEDICT (1).

Chili : freshwater *Entomostraca* ; RICHARD (8).

### III.—SYSTEMATIC.

## MALACOSTRACA.

### PODOPHTHALMA.

#### DECAPODA.

#### BRACHYURA.

#### INACHIDÆ.

*Simocarcinus pusillus*, Asaba, pp. 55 & 174, figg. 3 & 4, GAVINO, Bull. Soc. Nat. Napoli. (1) iii, n. sp.

#### PERICERIDÆ.

The family characterized and divided into the three subfamilies—*Pericerine*, *Othoniine*, and *Mithracine* ; all the genera and all the species known to the author characterized ; RATHBUN.

*Libinia emarginata*, Leach, p. 235, pl. xxxi, fig. 2, *dubia* (M.-Edw.), p. 237, fig. 1, N. America, *setosa*, Lock. Lower California, p. 238, pl. xxviii ; RATHBUN, P. U. S. Nat. Mus. xv.

- L. macdonaldi*, Gulf of California, p. 238, pl. xxix, *spinimana*, Carolina, &c., p. 240, pl. xxx, *mexicana*, Gulf of California, p. 242, pl. xxxi, fig. 3, RATHBUN, P. U. S. Nat. Mus. xv, n. spp.
- Pericera cornuta*, var. *celata*, M.-Edw., Florida, &c., p. 244; RATHBUN, P. U. S. Nat. Mus. xv.
- P. triangulata*, Gulf of California, p. 246, pl. xxxii, fig. 1, *atlantica*, Gulf of Mexico, p. 247, *contigua*, Gulf of California, p. 247, pl. xxxii, fig. 2, RATHBUN, P. U. S. Nat. Mus. xv, n. spp.
- Macroceloma camptocera*, Stmp., Florida, p. 249, pl. xxxiii, fig. 2, *eutheca*, Stmp., Florida, p. 251; RATHBUN, P. U. S. Nat. Mus. xv.
- M. tenuirostris*, Jamaica, p. 252, pl. xxxiii, fig. 1, RATHBUN, P. U. S. Nat. Mus. xv, n. sp.
- Podohuenia*, n. g. for *P. erythrea*, n. sp., Massaua; GAVINO, Boll. Soc. Nat. Napoli (1) iii, p. 180, fig. 5.
- Tiarinia depressa*, Stmp., Ousima, p. 276, pl. xl, fig. 1, *spinigera*, Stmp., Ousima, p. 277, pl. xl, fig. 2; RATHBUN, P. U. S. Nat. Mus. xv.
- Othonia aculeata*, Gibbes, Florida, p. 255, pl. xxxiv, figg. 1 & 2, *chernieri*, Schr., W. Indies, &c., p. 255, pl. xxxiv, figg. 3 & 4; RATHBUN, P. U. S. Nat. Mus. xv.
- O. carolinensis*, Charleston, p. 256, pl. xxxv, figg. 1 & 2, *nicholsi*, California, p. 257, pl. xxxv, fig. 3, *rotunda*, Florida, p. 258, pl. xxxvi, fig. 1, RATHBUN, P. U. S. Nat. Mus. xv, n. spp.
- Mithrax spinipes*, Bell, p. 259, *acuticornis*, Stmp., Gulf of Mexico, p. 260, pl. xxxvii, fig. 1, *forceps*, M.-Edw., N. America, Brazil, &c., p. 269; RATHBUN, P. U. S. Nat. Mus. xv.
- M. pilosus*, Bahamas, p. 262, pl. xxxix, *hemphilli*, Florida, p. 263, pl. xxxvii, fig. 2, *sinensis*, California, p. 266, pl. xxxviii, fig. 2, *bahamensis*, p. 267, pl. xxxviii, fig. 1, *braziliensis*, Brazil, p. 268, pl. xxxvi, fig. 2, RATHBUN, P. U. S. Nat. Mus. xv; *M. trigonopus*, Panama, p. 183, GAVINO, Boll. Soc. Nat. Napoli (1) iii: n. spp.
- Mithraculus tumidus*, Payta, p. 186, GAVINO, Boll. Soc. Nat. Napoli (1) iii, n. sp.

## CORYSTIDÆ.

- Telmessus cheiragonus*, Til., syn. *serratus*, White, &c., Oregon, &c., p. 224, pls. xxv & xxvi, figg. 2-4, *acutidens*, Stmp., Japan, p. 228, pl. xxvi, fig. 1; BENEDICT, P. U. S. Nat. Mus. xv.
- Erimacrus*, n. g., p. 229, for *Platycorystes isenbeckii*, Brandt, Unalaska, &c., p. 229, pl. xxvi, figg. 5-7, & pl. xxvii; BENEDICT, P. U. S. Nat. Mus. xv.

## CANCRIDÆ and TELPHUSIDÆ.

- Euryetisus*, n. g., p. 88, for *E. deplanatus*, n. sp., Singapore, pp. 81 & 200; GAVINO, Boll. Soc. Nat. Napoli (1) iii.
- Actumnus targionii*, Pernambuco, pp. 89 & 209, fig. 13; GAVINO, Boll. Soc. Nat. Napoli (1) iii, n. sp.

- Eucratoplax spinidentata*, Jamaica, BENEDICT, Johns Hopk. Univ. Circ. xi, p. 77, n. sp.
- Pilumnus tridentatus*, Maitl., is referable to the genus *Heteropanope*, the species figured and described, p. 228, pl. vii, fig. 1; DE MAN, Notes Leyd. Mus. xiv.
- Pilumnus sluiteri*, Batavia, p. 283, pl. 1, fig. 2, DE MAN, in Max Weber's Zool. Ergeb. ii, n. sp.
- Telphusa eminii*, n. sp., E. Africa, pp. 11-13, HILGENDORF (1). *T. granulata*, n. sp., Tjibodas, p. 290, pl. ii, fig. 5; *larnaudi*, n. var. *brevimarginata*, Sumatra and Java, p. 294, pl. iv, fig. 6; *celebensis*, n. sp., with 2 new vars., *lokaensis* and *pareparensis*, Celebes, p. 297, pls. xvii & xviii, fig. 17; DE MAN, in Max Weber's Zool. Ergeb. ii.
- Geotelphusa picta*, von Martens, Java, p. 234, pl. viii, fig. 2; *transversa*, von Mart., syn. *crassa*, M.-Edw., Fiji I., p. 241; DE MAN, Notes Leyd. Mus. xiv.
- G. loxophthalma*, Borneo, p. 245, pl. vii, fig. 3, DE MAN, Notes Leyd. Mus. xiv, n. sp.

## GRAPSIDÆ.

- Brachynotus harpax*, Aden, HILGENDORF, pp. 37-40, SB. nat. Fr. 1892, n. sp.
- Areograpsus jamaicensis*, Jamaica, BENEDICT, Johns Hopk. Univ. Circ. xi, p. 77, n. sp.
- Glyptograpsus spinipes*, Isola delle Perli, GAVINO, pp. 92 & 241, fig. 15, Boll. Soc. Nat. Napoli (1) iii, n. sp.
- Dotilla wickmanni*, Celebes, p. 308, pl. xviii, fig. 8, DE MAN, in Max Weber's Zool. Ergeb. ii, n. sp.
- Metaplex crassipes*, n. sp., Makassar, p. 325, pl. xix, fig. 12, DE MAN, in Max Weber's Zool. Ergeb. ii.
- Ptychognathus dentatus*, n. sp., Celebes, p. 318, pl. xviii, fig. 9; *riedelii*, n. var. *pilosa*, Flores, p. 323; DE MAN, in Max Weber's Zool. Ergeb. ii.
- Sesarma eydouxi*, M.-Edw., p. 248, *recta*, Rand., Surinam, p. 249, pl. x, fig. 4; *angusticeps*, Dana, syn. *ricordi*, M.-Edw., p. 253, fig. 5; *elongata*, A. M.-Edw., p. 256; DE MAN, Notes Leyd. Mus. xiv.
- S. curacaoensis*, n. sp., Curaçao, p. 257, fig. 6; DE MAN, Notes Leyd. Mus. xiv. *S. bidentata*, n. sp., Jamaica, p. 77; BENEDICT, Johns Hopk. Univ. Circ. xi. *S. melissa*, de Man, var. *moluccensis*, Flores, p. 328; *mæschii*, n. sp., Sumatra, p. 331, pl. xx, fig. 14; *frontalis*, A. M.-Edw., Flores, p. 334, pl. xx, fig. 13; *weberi*, n. sp., Flores, p. 338, fig. 15; DE MAN, in Max Weber's Zool. Ergeb. ii. *S. crassipes*, n. sp., Pernambuco, *barbimana*, n. sp., Payta, pp. 93, 244 & 245; GAVINO, Boll. Soc. Nat. Napoli (1) iii.
- Geosesarma*, n. subg. of *Sesarma*, p. 341, *nodulifera*, n. sp., Java, p. 342, pl. xx, fig. 16; *sylvicola*, n. sp., Sumatra, p. 345, pl. xx, fig. 18; *maculata*, n. sp., Flores, p. 347, pl. xxi, fig. 19; DE MAN, in Max Weber's Zool. Ergeb. ii.

## OXYSTOMATA.

This group with its three sections, the *Dorippinea*, *Calappinea*, and the *Leucosiinea*, pp. 550, &c. ; ORTMANN, Zool. Jahrb. vi.

## CYCLODORIPPIDÆ.

[New family, p. 582, ORTMANN, Zool. Jahrb. vi.]

*Cyclodorippe dromioides*, Japan, pp. 559, pl. xxvi, fig. 5, *uncifera*, Japan, p. 560, fig. 6, ORTMANN, Zool. Jahrb. vi, n. spp.

## HIPPIDEA.

The group, with its two families, *Hippidae* and *Albuniidae*, characterized, p. 531-538 ; ORTMANN, *t. c.*

## DROMIIDEA.

The group, with three families, *Homolidae*, *Dynomenidae*, n. fam., and *Dromiidae*, characterized, pp. 538-542 ; ORTMANN, Zool. Jahrb. vi.

*Cryptodromia canaliculata*, n. var. *ophryoessa*, Japan, pp. 545 & 546 ; ORTMANN, Zool. Jahrb. vi.

*Dicranodromia döderleini*, n. sp., Japan, p. 549, pl. xxvi, fig. 4, ORTMANN, Zool. Jahrb. vi.

## CALAPPIDÆ.

*Calappa japonica*, n. sp., Japan, p. 566, pl. xxvi, fig. 8, ORTMANN, Zool. Jahrb. vi.

## MATUTIDÆ.

*Notopus novemdentatus*, n. sp., New Caledonia, p. 574, pl. xxvi, fig. 11, ORTMANN, Zool. Jahrb. vi.

## LEUCOSIIDÆ.

*Cryptocnemus obolus*, n. sp., Japan, p. 576, pl. xxvi, fig. 12, ORTMANN, Zool. Jahrb. vi.

*Ebalia longimanus*, Japan, p. 579, pl. xxvi, fig. 13, *scabriuscula*, Japan, p. 580, fig. 14, *conifera*, Japan, p. 580, fig. 15, ORTMANN, Zool. Jahrb. vi, n. spp.

*Philyra heterograna*, Japan, p. 582, pl. xxvi, fig. 17, *syndactyla*, Japan, p. 583, pl. xxvi, fig. 18, ORTMANN, Zool. Jahrb. vi, n. spp.

## ANOMUR.1.

## GALATHEIDEA.

This group characterized, with the families *Ægleidae*, *Chirostylidae*, n., *Galatheidæ*, and *Porcellanidae*; ORTMANN, Zool. Jahrb. vi, pp. 241-326.

## PORCELLANIDÆ.

*Pachycheles laevidactylus*, n. sp., Brazil, p. 26, pl. xii, fig. 1, ORTMANN, Zool. Jahrb. vi.

*Polyonyx carinatus*, Loo Choo, p. 268, pl. xii, fig. 2, ORTMANN, Zool. Jahrb. vi, n. sp.

*Porcellana pulchellula*, n. sp., St. Lorenzo, p. 260, GAVINO, Boll. Soc. Nat. Napoli (1) iii.

## CHIROSTYLIDÆ.

[New family, p. 244, ORTMANN, Zool. Jahrb. vi.]

*Chirostylus*, n. g., p. 246, for *C. dolichopus*, n. sp., Japan, p. 246, p. xi, fig. 2; ORTMANN, Zool. Jahrb. vi.

## GALATHEIDÆ.

*Uroptychus japonicus*, Japan, p. 248, pl. xi, fig. 3, ORTMANN, Zool. Jahrb. vi, n. sp.

*Galathea*: synopsis of the species, pp. 248 & 249; ORTMANN, Zool. Jahrb. vi.

*G. affinis*, n. sp., Fiji I., p. 252, pl. xi, fig. 9, ORTMANN, Zool. Jahrb. vi.

*Munida heteracantha*, Japan, p. 255, pl. xi, fig. 12, ORTMANN, Zool. Jahrb. vi, n. sp.

*Munidopsis taurulus*, Japan, p. 256, pl. xi, fig. 13, ORTMANN, Zool. Jahrb. vi; *M. polymorpha*, Canary Is., p. 109, pl. x, figg. 3-16, KÆLBEL, Ann. Hofmuseum Wien, vii : n. spp.

*Galacantha camelus*, Japan, p. 257, pl. xi, fig. 14; ORTMANN, Zool. Jahrb. vi, n. sp.

## PORCELLANIDÆ.

*Petrolisthes reissii*, Ecuador, p. 260, pl. xi, fig. 15, *leporinoides*, S. Sea, p. 263, ORTMANN, Zool. Jahrb. vi, n. spp.

## PAGURIDEA.

This tribe contains the families *Parapaguridae*, *Paguridae* (with subfams. *Pagurinae*, *Diogeninae*, *Eupagurinae*), *Cænobitidae*, and *Lithodidae*, pp. 269-273; ORTMANN, Zool. Jahrb. vi.

## PARAPAGURIDÆ.

- Parapagurus abyssorum*, Hend., is synonymous with *P. pilosimanus*, Smith, p. 204; EDWARDS & BOUVIER, Ann. Sci. Nat. xiii.  
*Chiroplatea scalata*, Gulf of Mexico, p. 275, pl. xii, fig. 4; ORTMANN, Zool. Jahrb. vi, n. sp.

## PAGURIDÆ.

- Anapagurus pusillus*, Hend., n. var. *japonicus*, Japan, p. 296, pl. xii, fig. 11; ORTMANN, Zool. Jahrb. vi.  
*A. brevicarpus*, Spain, p. 215, *bicorniger*, Cadiz, p. 215, EDWARDS & BOUVIER, Ann. Sci. Nat. xiii; *A. curvidactylus*, Dakar, p. 253, CHEVREUX & BOUVIER, Bull. Soc. Z. Fr. xv, and Mém. Soc. Zool. v, p. 91, pl. ii, figg. 2-8 : n. spp.  
*Calcinus talismani*, Cape Verde, p. 225, EDWARDS & BOUVIER, Ann. Sci. Nat. xiii, n. sp.  
*Catapaguroides*, n. g. for *C. microps*, Spain, p. 211, *megalops*, Morocco, p. 213, *acutifrons*, Canaries, p. 213, n. spp., EDWARDS & BOUVIER, Ann. Sci. Nat. xiii.  
*Clibanarius melitai*, Dakar, p. 255, Bull. Soc. Z. Fr. xvi, and p. 135, pl. iv, figg. 3-6, Mém. Soc. Zool. v; *senegulensis*, Dakar, p. 256, t. c. and p. 131, pl. iv, figg. 7-11, t. c., CHEVREUX & BOUVIER : n. spp.  
*Diogenes denticulatus*, n. sp., Rufisque, CHEVREUX & BOUVIER, p. 254, Bull. Soc. Z. Fr. xvi, and p. 122, pl. iii, figg. 16-20, Mém. Soc. Zool. v.  
*Eupagurus lavimanus*, Tahiti, p. 302, pl. xii, fig. 13; *dubius*, Japan, p. 307, pl. xii, fig. 14; *triserratus*, Japan, p. 308, pl. xii, fig. 15; *similis*, Japan, p. 310; *barbatus*, Japan, p. 311; *samoensis*, Samoa, p. 312, pl. xii, fig. 17; *obtusifrons*, Japan, p. 313, pl. xii, fig. 18; *ophthalmicus*, Japan, p. 314, pl. xii, fig. 19, ORTMANN, Zool. Jahrb. vi; *E. variabilis*, Gulf of Gascony, p. 217; *pubescentulus*, Morocco, p. 219; *irregularis*, Cape Blanco, p. 220; *pulchellus*, Cape Verde, p. 221; *ruber*, ? Gulf of Gascony, p. 222, EDWARDS & BOUVIER, Ann. Sci. Nat. xiii; *triangularis*, Dakar, p. 253, Bull. Soc. Z. Fr. xvi, and p. 93, pl. ii, figg. 9-15, Mém. Soc. Zool. v; *inermis*, Dakar, p. 254, t. c. and p. 109, pl. iii, t. c. figg. 1-5; *minimus*, Dakar, p. 106, pl. ii, figg. 21-26, CHEVREUX & BOUVIER; *E. alaskensis*, Alaska, p. 2, *aleuticus*, Aleutian Is., p. 3; *patagoniensis*, Patagonia, p. 4; *smithi*, Gulf of California, p. 4; *impressus*, Florida, p. 5; *floridanus*, Florida, p. 5; *exilis*, La Plata, p. 6; *albus*, California, p. 6; *gladius*, California, p. 7; *defensus*, Gulf of Mexico, p. 7; *capillatus*, Alaska, p. 8; *brandti*, *dalli*, Aleutian Is., p. 9; *tanneri*, p. 10; *confragosus*, p. 11; *cornutus*, p. 12; *townsendi*, p. 13; *rathbuni*, p. 14, Alaska; *minutus*, Gulf of California, p. 14; *purpuratus*, Galapagos I., p. 15; *hemphilli*, California, p. 16; *beringanus*, Aleutian Is., p. 17; *newcombei*, British Columbia, p. 17; *undosus*, Bering Sea, p. 18; *setosus*, *minutus*, p. 19; *gilli*, p. 20, Alaska, *curaçaoensis*, Curaçao, p. 21; *californiensis*, *mexicanus*, *roseus*,

California, p. 22; *corallinus*, Florida, p. 23; *coronatus*, California, p. 24; *varians*, Gulf of California, p. 24; *cervicornis*, p. 25; *parvus*, p. 26, California; *hispidus*, Cuba, p. 26, BENEDICT, P. U. S. Nat. Mus. xv : n. spp.

*Nematopagurus*, n. g., p. 209, for *N. longicornis*, n. sp., Mediterranean, &c.; EDWARDS & BOUVIER, p. 210, Ann. Sci. Nat. xiii.

*Paguristes polythophilus*, p. 277, pl. xii, fig. 5, *acanthomerus*, p. 279, pl. xii, fig. 6, *kagoshimensis*, p. 281, pl. xii, fig. 8, Japan, ORTMANN, Zool. Jahrb. vi; *P. hispidus*, Liberia, p. 208, EDWARDS & BOUVIER, Ann. Sci. Nat. xiii : n. spp.

## LITHODIDÆ.

*Lithodes turritus*, Japan, p. 320, pl. xii, fig. 26, ORTMANN, Zool. Jahrb. vi, n. sp.

*Hapalogaster grebnitzkii*, Behring Is., p. 335, fig. 3, *brandti*, Sitka, p. 336, fig. 1, SCHALFÉE, Bull. Pétersb. xxxv, n. spp.

*Placetron*, n. g., p. 339, for *P. wosnessenskii*, n. sp., Kadjak, p. 339, fig. 6; SCHALFÉE, Bull. Pétersb. xxxv.

## MACRURA.

The groups *Homaridea*, *Loricata*, and *Thalassinidea*, characterized. The *Homaridea*, containing the *Homaridæ* and *Astacidæ*; the *Loricata*, containing the *Palinuridæ* and *Scyllaridæ*; and the *Thalassinidea*, containing the *Axiidæ*, *Thalassinidæ*, *Calocaridæ* (n. fam.), and *Callianassidæ*; ORTMANN, Zool. Jahrb. vi.

## ASTACIDÆ.

*Astacus similis*, Corea; KÆLBEL, Anz. Ak. Wien, xviii, pp. 176 & 177, n. sp.

## PALINURIDÆ.

The known genera of the family characterized; ORTMANN, pp. 14 & 15, Zool. Jahrb. vi.

*Avus*, n. g., syn. *Linuparis*, Gray; ORTMANN, p. 21, Zool. Jahrb. vi.

*Senex*, n. g., syn. *Panulirus*, Gray: synopsis of the species; ORTMANN, pp. 22 & 23, Zool. Jahrb. vi.

*Puer*, n. g., syn. *Panulirus*, Bate in part, for *angulatus*, Bate, and *pellucidus*, n. sp., Japan, p. 37, pl. i, fig. 3; ORTMANN, Zool. Jahrb. vi.

## AXIIDÆ.

*Eiconaxius farreæ*, Japan, pp. 49 & 50, pl. i, fig. 4, ORTMANN, Zool. Jahrb. vi, n. sp.

## CALLIANASSIDÆ.

- Gebia littoralis*, Risso, Naples, &c., p. 53, pl. i, fig. 6, *major*, De Haan, Japan, p. 54, pl. i, fig. 7, *barbata*, Str., Samoa, p. 54, pl. i, fig. 8, *isodactyla*, n. sp., Red Sea, p. 55, pl. i, fig. 9; ORTMANN, Zool. Jahrb. vi.
- Callianassa subterranea*, Mont., Mediterranean Sea, p. 55, pl. i, fig. 10, n. var. *japonica*, Japan, fig. 10A, *diademata*, n. sp., Africa, p. 56, pl. i, fig. 11; ORTMANN, Zool. Jahrb. vi.

## ATYIDÆ.

- Atya moluccensis*, De Haan, Java, Sumatra, Celebes, &c., p. 357, pl. xxi, fig. 20, *brevirostris*, n. sp., Flores, p. 360, pl. xxi, fig. 21; DE MAN, in Max Weber's Zool. Ergeb. ii.
- Caridina typus*, M.-Edw., Flores, Celebes, p. 367, pl. xxi, fig. 22; *weberi*, n. sp., Flores, &c., p. 371, pl. xxii, fig. 23, var. *sumatrensis*, n. var., Sumatra, p. 375, pl. xxii, fig. 33G; *parvirostris*, n. sp., Flores, p. 375, pl. xxii, fig. 24; *levis*, Hell., Java, p. 376, pl. xxiii, fig. 27; *pareparensis*, n. sp., Celebes, p. 379, pl. xxii, fig. 25; *multidentata*, n. sp., Celebes, p. 380, pl. xxii, fig. 26; *serratirostris*, n. sp., Flores, p. 382, pl. xxiii, fig. 28, n. var. *celebensis*, Celebes, p. 385, pl. xxiii, fig. 28; *wyckii*, Hickson, Celebes, p. 386, pl. xxiv, fig. 29, n. var. *gracilipes*, Celebes, p. 393; *brevicarpalis*, Celebes, p. 397, pl. xxiv, fig. 30, n. var. *endehensis*, p. 399, pl. xxiv, fig. 30E; *gracilirostris*, n. sp., Celebes, p. 399, pl. xxv, fig. 31; DE MAN, in Max Weber's Zool. Ergeb. ii; *japonica*, n. sp., Japan, p. 261, pl. ix, figg. 7 & 8; DE MAN, Notes Leyd. Mus. xiv.

## PALÆMONIDÆ.

- Alpheus gracilidigitus*, Miers, loc. ?, p. 406, pl. xxv, fig. 32; DE MAN, in Max Weber's Zool. Ergeb. ii.
- Hippolyte ponapensis*, Ortm., is a synonym of *Hetairocaris orientalis*, De Man; DE MAN, p. 263, Notes Leyd. Mus. xiv.
- Palæmon weberi*, n. sp., Celebes, p. 421, pl. xxv, fig. 33; *dispar*, v. Martens, Celebes, &c., p. 427, pl. xxvi, fig. 34; *sundaicus*, Heller, Flores, Celebes, p. 437, pl. xxvi, fig. 35; *elegans*, n. sp., Java, p. 440, pl. xxvi, fig. 36; *equidens*, Dana, Sumatra, p. 453, pl. xxvi, fig. 36; *javanicus*, Hell., Sumatra, p. 457, pl. xxvi, fig. 38; *horstii*, n. sp., Celebes, p. 460, pl. xxvii, fig. 39; *scabriculus*, Hell., Celebes, p. 462, pl. xxvii, fig. 41; *endehensis*, n. sp., Flores, p. 465, pl. xxvii, fig. 42; *modestus*, n. sp., Flores, p. 469, pl. xxvii, fig. 43; *pilimanus*, De Man, Sumatra, p. 471 pls. xxvii & xxviii, fig. 44, n. var. *leptodactylus*, Java, p. 476, pl. xxviii, figg. 44 & k-i; *latimanus*, v. Mart., syn. *euryrhynchus*, Ortm., Flores, Timor, &c., p. 477, pl. xxviii, fig. 45; *placidus*, n. sp., Sumatra, p. 483, pl. xxviii, fig. 46; *placidulus*, n. sp., Flores, &c., p. 489, pl. xxviii, fig. 48; *lampropus*, n. sp., Celebes, p. 493, pl. xxix,

fig. 49 ; *bariensis*, n. sp., Flores, p. 490, pl. xxix, fig. 50 ; *lepidactylodes*, n. sp., Flores, p. 497, pl. xxix, fig. 51 ; *lepidactylus*, Thal., Celebes, p. 501, fig. 52 ; *latidactylus*, Thal., Flores, p. 504, pl. xxix, fig. 52 ; DE MAN, in Max Weber's Zool. Ergeb. ii.

#### PENÆIDÆ.

*Penæus semisulcatus*, De Haan, Celebes, p. 510 ; *indicus*, M.-Edw., syn. *merguiensis*, De Man, Celebes, p. 511, pl. xxix, fig. 3 ; *monoceros*, Fabr., Celebes, p. 513, pl. xxix, fig. 54 ; DE MAN, in Max Weber's Zool. Ergeb. ii.

#### PSALIDOPODIDÆ.

[N. fam., p. 265 ; WOOD-MASON & ALCOCK, Ann. N. H. (6) ix.]

*Psalidopus*, n. g., p. 266, for *P. huxleyi*, Andaman Sea, p. 273, pl. xiv, figg. 1, 2, 7, *spiniventris*, p. 274, pl. xiv, figg. 3-6, and pl. xv, figg. 1-10, n. spp., Andaman Sea ; WOOD-MASON & ALCOCK, t. c.

#### ACANTHEPHYRIDÆ.

*Acanthephyra sanguinea*, n. sp., p. 358, fig. 1 ; *armata*, M.-Edw., p. 359, fig. 2 ; *eximia*, Smith, p. 361, fig. 3 ; *brachytelsonis*, Bate, p. 363, fig. 4 ; *curtirostris*, W.-M., p. 364, fig. 5, Indian Ocean ; WOOD-MASON & ALCOCK, Ann. N. H. (6) ix.

#### SCHIZOPODA.

NORMAN, Ann. N. H. (6) ix, pp. 454-464, and x, pp. 143-166, 242-263, characterizes this group with the families, sub-families, genera and species that are known to occur in Britain.

#### CRYPTOPODIDÆ.

[N. fam., p. 444, &c., BENEDEN, Bull. Ac. Belg. xxii.]

*Cryptopus*, syn. *Cerataspis*, referred to the *Penæidæ*, p. 1029 ; GIARD & BONNIER, C.R. cxiv.

#### MYSIDÆ.

*Mysidopsis gibbosa*, Sars, p. 164, pl. x, fig. 8 ; *angusta*, Sars, p. 165, fig. 9, British Seas ; *hibernica*, n. sp., Valentia, p. 165, pl. ix, figg. 1-5 ; NORMAN, Ann. N. H. (6) ix.

*Schistomysis*, n. g., p. 254, for *S. parkeri*, n. sp., Devon, p. 256, pl. x, figg. 1-7 ; NORMAN, Ann. N. H. (6) ix.

*Heteromysis formosa*, Smith, syn. *norvegica*, Sars, British Seas, p. 158, pl. ix, figg. 6-11 ; NORMAN, Ann. N. H. (6) ix.

*Erythrops elegans*, Sars, p. 161, pl. x, fig. 10 ; NORMAN, Ann. N. H. (6) ix.

## EDRIOPHTHALMA.

## CUMACEA.

*Cyclaspis levis*, Dunedin, p. 264, pls. xvi & xvii, figg. 1-26, THOMSON, J. L. S. xxiv, n. sp.

*Diastylis neo-zelandica*, Dunedin, Otago Bay, p. 268, pl. xviii, figg. 1-11 ; THOMSON, J. L. S. xxiv, n. sp.

## AMPHIPODA.

## AMPHILOCHIDÆ.

*Astyra abyssi*, Boeck, Norway, p. 214, pl. lxxiii ; SARS, Amphipoda of Norway.

*Amphilochoides*, n. g., p. 220, for *Amphilochus odontonyx*, Boeck, p. 221, pl. lxxv, fig. 2 ; and *A. pusillus*, n. sp., p. 222, pl. lxxvi, fig. 1, Norway ; SARS, Amphipoda of Norway.

*Amphilochus manudens*, Sp. Bate, p. 217, pl. lxxiv ; *tenuimanus*, n. sp., p. 218, pl. lxxv, fig. 1, Norway ; SARS, Amphipoda of Norway.

*Gitana sarsii*, Boeck, syn. *A. sabrineæ*, p. 228, pl. lxxviii, fig. 1 ; *abyssicola*, n. sp., p. 229, pl. lxxviii, fig. 2 ; *rostrata*, Boeck, p. 230, pl. lxxix, fig. 1, Norway ; SARS, Amphipoda of Norway.

*Gitanopsis*, n. g., p. 223, for *G. bispinosa*, Boeck, p. 224, pl. lxxvi, fig. 2 ; *inermis*, Sars, p. 225, pl. lxxvii, fig. 1, and *G. arctica*, n. sp., p. 227, pl. lxxvii, fig. 2, Norway ; SARS, Amphipoda of Norway.

*Stegoplax longirostris*, Sars, Norway, p. 232, pl. lxxix, fig. 2 ; SARS, Amphipoda of Norway.

## GAMMARIDÆ.

*Gammarus delebecquei*, from the Lake of Annecy, p. 1286, CHEVREUX & DE GUERNE, Bull. Soc. Z. Fr. xvii, & C.R. cxiv, n. sp.

## LEUCOTHOIDÆ.

*Leucothoe spinicarpa*, Abild., p. 283, pls. c & ci, fig. 1, *lilljeborgi*, Boeck, p. 284, pl. ci, fig. 2 ; SARS, Amphipoda of Norway. *L. incisa*, n. n. for *L. furina*, Chevreux, from Cumbræ, p. 217 ; ROBERTSON, P. N. H. Soc. Glasg. iii.

## LYSIANAXIDÆ.

Synonymy of British *Lysianaxidæ* ; WALKER, Ann. N. H. (6) ix, pp. 134-138.

*Pararistias*, n. g., p. 201, for *Lysianassa audouinianus*, Bate ; ROBERTSON, P. N. H. Soc. Glasg. iii.

*Perrierella*, n. g. for *P. crassipes*, n. sp., France, p. 50 ; CHEVREUX & BOUVIER, Bull. Soc. Z. Fr. xvii.

*Socarnes erythrophthalmus*, Cumbræ, p. 200, ROBERTSON, P. N. H. Soc. Glasg. iii, n. sp.

## ÆDICERIDÆ.

- Aceros phyllonyx*, Sars, p. 338, pls. cxix & cxx, fig. 1, Norway; Sars, Amphipoda of Norway.
- Bathymedon*, n. g., p. 332, for *B. longimanus*, Boeck, p. 333, pl. cxvii; *saussurei*, Boeck, p. 335, pl. cxviii, fig. 1; *obtusifrons*, Hans., p. 336, pl. cxviii, fig. 2, Norway; Sars, Amphipoda of Norway.
- Haliceion longicaudatus*, Boeck, p. 322, pl. cxiii, fig. 2, Norway; Sars, Amphipoda of Norway.
- Halimmedon mülleri*, Boeck, p. 327, pl. cxv; *acutifrons*, n. sp., p. 329, pl. cxvi; *megalops*, Sars, p. 330, pl. cxvi, fig. 2; *brevicalcar*, Goës, p. 331, pl. cxvi, fig. 3; Norway; Sars, Amphipoda of Norway.
- Monoculodes carinatus*, Sp. Bate, p. 295, pl. cv; *tessellatus*, Schn., p. 297, pl. cvi, fig. 1; *borealis*, Boeck, p. 298, pl. cvi, fig. 2; *pallidus*, n. sp., p. 299, pl. cvi, fig. 3; *norvegicus*, Boeck, p. 301, pl. cvii, fig. 1; *falcatus*, n. sp., p. 302, pl. cvii, fig. 2; *tuberculatus*, Boeck, p. 303, pl. cvii, fig. 3; *latimanus*, Goës, p. 304, pl. cviii, fig. 1; *kroyeri*, Boeck, p. 305, pl. cviii, fig. 3; *longirostris*, Goës, p. 306, pl. cviii, fig. 3; *packardii*, Boeck, p. 307, pl. cix, fig. 1; *tenuirostratus*, Boeck, p. 309, pl. cix, fig. 2; Norway; Sars, Amphipoda of Norway.
- Monoculopsis*, n. g., p. 310, for *longicornis*, Boeck, p. 311, pl. cx, fig. 1, Norway; Sars, Amphipoda of Norway.
- Ædiceropsis brevicornis*, Lillj., p. 325, pl. cxiv, Norway; Sars, Amphipoda of Norway.
- Ædiceros saginatus*, Kröy., p. 288, pl. cii; *borealis*, Boeck, p. 290, pl. ciii, fig. 1, Norway; Sars, Amphipoda of Norway.
- Parædiceros*, n. g., p. 291, *lynceus*, Sars, p. 292, pl. ciii, fig. 2, & pl. civ, fig. 1; *propinquus*, Göes, p. 293, pl. civ, fig. 2, Norway; Sars, Amphipoda of Norway.
- Periculodes*, n. g., p. 312, for *P. longimanus*, Sp. Bate, p. 313, pl. cx, fig. 2, & pl. cxi, fig. 1, Norway; Sars, Amphipoda of Norway.
- Pontocrates norvegicus*, Boeck, p. 315, pl. cxi, fig. 2, Norway; Sars, Amphipoda of Norway.
- Synchelidium*, n. g., p. 317, for *brevicarpum*, Sp. Bate, p. 318, pl. cxii, fig. 1; *haplocheles*, Grube, p. 319, pl. cxii, fig. 2; *intermedium*, n. sp., p. 320, pl. cxiii, fig. 1, Norway; Sars, Amphipoda of Norway.

## ORCHESTIDÆ.

- Orchestia floresiana*, p. 562, *martensii*, p. 564, Flores, *parvispinosa*, Java, p. 566, *montana*, Celebes, p. 567, MAX WEBER, Zool. Ergeb. ii, n. spp.
- Hyale grimaldii*, p. 257, figg. 1-5, CHEVREUX, Bull. Soc. Z. Fr. xvi, n. sp.

## STENOTHOIDÆ.

- Cressa dubia*, Sp. Bate, p. 278, pl. xcvi, fig. 2, & pl. xcix, fig. 1; *minuta*, Boeck, p. 280, pl. xcix, fig. 2, Norway; Sars, Amphipoda of Norway.
- Metopa alderi*, Sp. Bate, p. 250, pl. lxxxvi; *spectabilis*, Sars, p. 251,

pl. lxxxvii; *boeckii*, n. sp., syn. *M. bruzelii*, Boeck; *borealis*, Sars, in part, p. 252, pl. lxxxviii; *borealis*, Sars, p. 254, pl. lxxxix, fig. 1; *rubrovittata*, Sars, p. 255, pl. lxxxix, fig. 2; *pusilla*, n. sp., p. 256, pl. xc, fig. 1; *longicornis*, Boeck, p. 258, pl. xc, fig. 2; *tenuimana*, n. sp., p. 259, pl. xci, fig. 1; *affinis*, Boeck, p. 260, pl. xci, fig. 2; *bruzelii*, Goës, p. 261, pl. xcii, fig. 1; *sinuata*, n. sp., syn. *bruzelii*, Hans., in part, p. 263, pl. xcii, fig. 2; *propinqua*, n. sp., p. 264, pl. xciii, fig. 1; *leptocarpa*, Sars, p. 265, pl. xciii, fig. 2; *sölsbergi*, Schneider, p. 266, pl. xciv, fig. 1; *invalida*, n. sp., syn. *M. alderi*, Boeck, in part, p. 267, pl. xciv, fig. 2; *pollexiana*, Sp. Bate, p. 269, pl. xcv; *robusta*, n. sp., p. 270, pl. xevi, fig. 1; *palmata*, n. sp., p. 272, pl. xevi, fig. 2; *longimana*, p. 273, pl. xevii, fig. 1; *neglecta*, Hansen, p. 274, pl. xevii, fig. 2; *nasuta*, Boeck, p. 276, pl. xeviii, fig. 1: from Norway; Sars, Amphipoda of Norway.

*Metopella*, n. g., suggested as new generic name for *Metopa longimana*, Sp. Bate, p. 274; Sars, Amphipoda of Norway.

*Probolium gregarium*, Sars, p. 245, pl. lxxxiv; *calcaratum*, Sars, p. 247, pl. lxxxv, Norway; Sars, Amphipoda of Norway.

*Stenothoe marina*, Sp. Bate, p. 236, pl. lxxx; *microps*, n. sp., p. 237, pl. lxxxii, fig. 1; *tenella*, Sars, p. 238, pl. lxxxii, fig. 2; *monoculoides*, Mont., p. 240, pl. lxxxii, fig. 1; *brevicornis*, Sars, p. 241, pl. lxxxii, fig. 2; *megachir*, Boeck, p. 242, pl. lxxxiii, Norway; Sars, Amphipoda of Norway. *S. dollfusi*, n. sp., Azores, p. 260, figg. 6-10, CHEVREUX, Bull. Soc. Z. Fr. xvi.

### Aliarum Familiarum,

*Hyperia schizogeneios*, Stebbing, adult ♂ described; CHEVREUX, Bull. Soc. Z. Fr. xvii, p. 233.

*Pardaliscoides*, n. g. for *P. tenellus*, n. sp.; STEBBING, Rep. on the Amphipoda of the "Challenger," p. 1725 (1888).

## ISOPODA.

### ASELLIDÆ.

*Asellus coxalis*, Syria, p. 13, pl. ii, fig. 11, DOLLFUS, Rev. Biol. iv, n. sp.

*Jacropsis neo-zelandica*, Akaroa, p. 267, CHILTON, Tr. N. Z. Inst. xxiv, n. sp.

*Munna neo-zelandica*, New Zealand, p. 2, pls. i & ii, figg. 1-15; CHILTON, Tr. N. Z. Inst. xxiv, n. sp.

### BOPYRIDÆ.

*Probopyrus giardi* on *Palæmon placidus*, Sumatra, p. 557, pl. xxx, fig. 1, MAX WEBER, Zool. Ergeb. ii, n. sp.

*Palægyge borrei*, Giard & Bonnier, on *Palemon dispar*, Flores, p. 557, pl. xxx, fig. 5; *bonnieri*, n. sp., on *P. lar*, Celebes, p. 558, pl. xxx, fig. 4; *fluviatilis*, n. sp., on *P. lampropus*, Celebes, p. 559; *de mani*, n. sp., on *P. spinimanus*, Sumatra, p. 560; MAX WEBER, Zool. Ergeb. ii.

## ONISCIDÆ.

- Armadillidium scabrum*, n. sp., Seville, p. 165, with fig., DOLLFUS, Ann. Soc. Esp. (2) i. *A. sanctum*, n. sp., Syria, p. 4, pl. i, fig. 2; *granum*, n. sp., Syria, p. 5, fig. 3; DOLLFUS, Rev. Biol. iv. *A. granulatum*, Br., *serratum*, B.-L., *nasatum*, B.-L., *maculatum*, Risso, *simoni*, Dollf., *assimile*, B.-L., *esterelanum*, Dollf., *zenckeri*, Br., *pictum*, Br., *pulchellum*, Br., *vulgare*, Latr., *sordidum*, Dollf., *opacum*, Kochs, *alpinum*, Dollf., *quinquepustulatum*, B.-L., *depressum*, Br., *album*, Dollf., from France, figured and described, pp. 8-18, figg. 1-26; DOLLFUS, Feuille. Nat. xxii.
- Armadillo officinalis*, n. var. *syriaca*, p. 2, *albomarginatus*, n. sp., Syria, p. 3; DOLLFUS, Rev. Biol. iv.
- Mesarmadillo*, n. g., p. 385; *alluaudi*, p. 386, pl. vii, fig. 1, *marginatus*, p. 387, fig. 2, *tuberculatus*, p. 387, fig. 3, Assinie, DOLLFUS, Ann. Soc. Ent. Fr. lxi, n. spp.
- Metoponorthrus rufocinctus*, Corunna, p. 184, fig.; DOLLFUS, Ann. Soc. Esp. (2) i; *M. pica*, Syria, p. 10, pl. ii, fig. 9, *trifasciatus*, Tiberias, p. 11, pl. ii, fig. 10; DOLLFUS, Rev. Biol. iv : n. spp.
- Philoscia minima*, Granada, p. 187, fig., DOLLFUS, Ann. Soc. Esp. (2) i, n. sp.
- Porcellio magnificus*, n. sp., Alcazaba, p. 270, fig., *succinctus*, B.-L., p. 171, fig.; *P. nicklesi*, p. 171, fig., *bolivari*, p. 172, fig., *expansus*, p. 174, fig., *pyrenæus*, p. 175, fig., *de buenii*, p. 176, fig., *amœnus*, p. 178, fig., *hispanus*, p. 179, fig., *nigro-granulatus*, p. 182, fig., Spain, n. spp.; DOLLFUS, Ann. Soc. Esp. (2) i. *P. inconspicuus*, Dead Sea, p. 5, pl. i, fig. 4, *fissifrons*, Syria, p. 7, pl. i, fig. 5, *barroisi*, Dead Sea, p. 7, pl. i, fig. 6, *contractus*, Syria, p. 8, pl. ii, fig. 7; *P. (Leptotrichus) pulchellus*, Syria, pl. ii, fig. 8; DOLLFUS, Rev. Biol. iv. : n. spp.
- Synarmadillo*, n. g., p. 388, for *S. clausus*, n. sp., Assinie, p. 388, pl. vii, fig. 4; DOLLFUS, Ann. Soc. Ent. Fr. lxi.

## CYMOTHOIDÆ, &amp;c.

- Ichyozenus jellinghausii*, Herkl., on species of *Puntius*, Sumatra, p. 545; MAX WEBER, Zool. Ergeb. ii.
- Lironeca sulcata*, Canary Is., p. 105, pl. x, figg. 1 & 2, KÆLBEL, Ann. Hof-museum Wien, vii, n. sp.
- Rocinela typus*, M.-Edw., Sumatra, p. 553; MAX WEBER, Zool. Ergeb. ii.
- Spheroma egregia*, Akaroa, p. 269, CHILTON, Tr. N. Z. Inst. xxiv, n. sp.
- Tachæa lucustris*, Sumatra, p. 551, MAX WEBER, Zool. Ergeb. ii.

## ENTOMOSTRACA.

## PHYLLOPODA.

## A. Recent Forms.

- Apus* (*Lepidurus*) *glucialis*, n. var. *spitzbergensis*, Spitzbergen, p. 291, BERNARD, The *Apodidae*.  
*Branchipus ledoulxi*, Syria, p. 25, fig. 1, BARROIS, Rev. Biol. v, n. sp.  
*Estheria hierosolymitans* and *gihoni*, figured and described, pp. 34-37; BARROIS, Rev. Biol. v.

## B. Fossil Forms.

- Anomolocaris*, n. g., p. 205, *canadensis*, p. 206, WHITEAVES, Can. Rec. v, n. sp.  
*Aptychopsis barraudeana*, n. sp., Moffat Beds, p. 101, pl. xv, fig. 1; *cordiformis*, n. sp., Lower Wenlock, p. 103, pl. xv, fig. 2; *luta*, n. sp., p. 104, pl. xv, fig. 6; *ovata*, n. sp., Dumfries, p. 108, fig. 4; *subquadrata*, n. sp., Upper Silurian, p. 110, fig. 20; *oblata*, n. sp., Gala group, p. 111, figg. 18, 21, & 23; JONES & WOODWARD, Palæont. Soc.  
*Discinocaris ovalis*, p. 121, pl. xvi, fig. 20, *undulata*, p. 122, pl. xvi, fig. 24, JONES & WOODWARD, Palæont. Soc., n. spp.  
*Peltocaris patula*, Moffat Series, p. 116, pl. xvi, figg. 10 & 11, *carruthersii*, syn. *aptychoides*, Woodw., Moffat Series, p. 116, pl. xvii, fig. 7, JONES & WOODWARD, Palæont. Soc., n. spp.

## CLADOCERA.

- Alona cilio-caudata*, S. W. Russia, p. 159, pl. iii, figg. 33-36, SOWINSKY, Zapiski. Kiev, xi. *A. lepida*, Wisconsin, p. 393, pl. xiii, fig. 19, BIRGE, Tr. Wisconsin Acad. viii: n. spp.  
*Grimaldina brazzai*, Congo, p. 214, figg. 1-3, RICHARD, Mém. Soc. Zool. v, n. sp.  
*Guernella raphaelis*, p. 218, figg. 4-6, RICHARD, Mém. Soc. Zool. v, n. sp.  
*Latonopsis occidentalis*, Wisconsin, p. 383, pl. xiii, figg. 1-5, BIRGE, Tr. Wisconsin Acad. viii, n. sp.  
*Macrothrix chevreuxi*, Rufisque, p. 530, GUERNE & RICHARD, Mém. Soc. Zool. v, n. sp.  
*Moina dubia*, Rufisque, p. 527, GUERNE & RICHARD, Mém. Soc. Zool. v, n. sp.  
*Moinodaphnia mocquersyi*, p. 222, figg. 7 & 8, RICHARD, Mém. Soc. Zool. v, n. sp.  
*Pleuroxus truncatus*, n. var. *Poppei*, p. 189; KLOCKE, Zool. Anz. xv.

## OSTRACODA.

- Cypris unguolata*, Algeria, p. 247, *blanchardi*, p. 252, MONIEZ, Mém. Soc. Zool. iv, n. spp.  
*Leucocythere*, n. g., for *L. mirabilis*, p. 394; KAUFMAN, Zool. Anz. xv, n. sp.  
*Pachycypris leuckarti*, p. 57, *incisa*, p. 59, S. America, CLAUS, Arb. z. Inst. Wien, x, n. spp.

## COPEPODA.

- Argulus indicus*, Java, p. 544, fig. 1, MAX WEBER, Zool. Ergeb. ii, n. sp.  
*Arietellus*, n. g. for *A. setosus*, n. sp., Naples, p. 415; GIESBRECHT, Copepoden des Golfes von Neapel.  
*Belisarius vignieri*, p. 132, MAUPAS, C.R. cxv, p. 132, n. sp.  
*Caligus dakari*, p. 243, pl. i, figg. 1-4, BENEDEN, Bull. Ac. Belg. xxiii, n. sp.  
*Caligera difficilis*, n. sp., p. 258, p. iv, BENEDEN, Bull. Ac. Belg. xxiii.  
*Calina brachyura*, p. 249, pl. ii, BENEDEN, Bull. Ac. Belg. xxiii, n. sp.  
*Candace varicans*, Naples, p. 439, GIESBRECHT, Copepoden des Golfes von Neapel, n. sp.  
*Canthocamptus yahiai*, Algeria, p. 516, pl. vi, fig. 42, BLANCHARD & RICHARD, Mém. Soc. Zool. iv, n. sp.  
*Chiridius*, n. g. for *C. poppei*, n. sp., Naples, p. 224; GIESBRECHT, Copepoden des Golfes von Neapel.  
*Chlamys*, n. g. for *C. incisus*, n. sp., Dakar Bay, pp. 227-231, pl. ii, figg. 1-10; BENEDEN, Bull. Ac. Belg. xxiii.  
*Copilia* (*Saphirinella*), genus monographed, with chart of geographical distribution; DALL, Zool. Jahrb. vi.  
*Cyclops hamatus*, *kiewensis*, *brevisetosus*, *palustris*, *poggenpolii*, *uljanini*, *trouchanowi*, *kovostyschewi*, n. spp. from S. W. Russia, mentioned, but apparently not described; SOWINSKY, Zapiski. Kiev, xi. *C. dybowskii*, n. sp., Germany, p. 163, LANDÉ, Mém. Soc. Zool. v.  
*Dactylopus jugurtha*, n. sp., Algeria, p. 519, pl. vi, figg. 26-41, BLANCHARD & RICHARD, Mém. Soc. Zool. iv.  
*Diaptomus sancti-patricii*, Connemara, p. 99, pl. xiv, figg. 5-7, *hircus*, Orkney, p. 100, pl. x, figg. 2-4, BRADY, Nat. Hist. Tr. North Durham, xi; *D. schmackeri*, Lake Tahoe (China), p. 149, POPPE & RICHARD, Bull. Soc. Z. Fr. xvii: n. spp.  
*Eucheta acuta*, p. 262, *spinosa*, p. 263, Naples, GIESBRECHT, Copepoden des Golfes von Neapel, n. spp.  
*Grypopeltis ranarum*, Central Africa, pp. 152-154; STUHLMANN, Zool. Jahrb. vi, n. sp.  
*Hemicalanus acutifrons*, *fertilis*, *ornatus*, *spiniceps*, Naples, pp. 398 & 399, GIESBRECHT, Copepoden des Golfes von Neapel, n. spp.

- Herpyllobiidæ*, n. fam. for *Rhizorhina*, n. g., Ent. Med. 1892, pp. 207-231.
- Ilyopsyllus*, syn. *Abacula*, *jousseau mei*, n. sp., p. 69; RICHARD, Bull. Soc. Z. Fr. xvii.
- Laophonte mohammed*, Algeria, p. 526, BLANCHARD & RICHARD, Mém. Soc. Zool. iv, n. sp.
- Lichomolgus agilis*, Firth of Forth, p. 201, pl. xv, figg. 1-14, SCOTT, T., Ann. N. H. x; *L. aberdonensis*, E. of Scotland, p. 149, pl. vi, figg. 1-12, SCOTT, T. & A., Ann. Scott. Nat. Hist. Soc. 1892: n. spp.
- Mesochra lybica*, Algeria, p. 523, pl. vi, fig. 16, BLANCHARD & RICHARD, Mém. Soc. Zool. iv, n. sp.
- Metridia normani*, Faroe Channel, p. 345, GIESBRECHT, Copepoden des Golfes von Neapel, n. sp.
- Monstrilla gracilicauda*, *longiremis*, Naples, p. 589, GIESBRECHT, Copepoden des Golfes von Neapel, n. spp.
- Möbianus*, n. g., for *M. gyrans*, n. sp., Naples, GIESBRECHT, p. 205, Copepoden des Golfes von Neapel.
- Nogagus angustatus*, BENEDEN, Bull. Ac. Belg. xxiv, n. sp.
- Onca minuta* and *subtilis*, Naples, p. 603, GIESBRECHT, Copepoden des Golfes von Neapel, n. spp.
- Pandarus cranchii*, male described and figured, p. 221, pl. i, figg. 1-4; BENEDEN, Bull. Ac. Belg. xxiii.
- Pupulina flores*, p. 254, pl. iii, BENEDEN, Bull. Ac. Belg. xxiv, n. sp.
- Rhizorhina*, n. g. (*Herpyllobiidæ*) for *R. ampeliscæ*, n. sp., Denmark, pp. 231 & 232, pl. iii; HANSEN, Ent. Med. 1892.
- Rotania*, n. g. for *R. flava*, n. sp., Naples; GIESBRECHT, p. 616, Copepoden des Golfes von Neapel.
- Sapphirina lactens*, *pyrosomatis*, *maculosa*, Naples, GIESBRECHT, pp. 641-643, Copepoden des Golfes von Neapel, n. spp.
- Scolecithrix vittata*, *profunda*, *longipes*, *dentata*, *tenuiserrata*, *dubia*, *auropecten*, Naples, GIESBRECHT, Copepoden des Golfes von Neapel, n. spp.
- Synapticola*, n. g. for *S. teres*, n. sp., on *Synapta kefersteinii*, pp. 31-42; VOIGT, Z. wiss. Zool. liii.
- Thaumaleus claparedii* and *reticulatus*, Naples, GIESBRECHT, p. 585, Copepoden des Golfes von Neapel, n. spp.
- Xanthocalanus agilis* and *minor*, Naples, GIESBRECHT, pp. 286-292, Copepoden des Golfes von Neapel, n. spp.

## CIRRIPEDIA.

## LEPADIDÆ.

- Alepas japonica*, Japan, p. 125, AURIVILLIUS, Cefv. Ak. Förh. 1892, n. sp.
- Dichelaspis cor*, S. Africa, p. 124, *bullula*, Java, p. 125, AURIVILLIUS, Cefv. Ak. Förh. 1892, n. spp.

- Lepas testudinata*, S. Africa, p. 123, AURIVILLIUS, Œfv. Ak. Förh. 1892, n. sp.
- Orynaspis patens*, W. Indies, p. 125, AURIVILLIUS, Œfv. Ak. Förh. 1892, n. sp.
- Pacilasma vagans*, off Nautilus, p. 124, AURIVILLIUS, Œfv. Ak. Förh. 1892, n. sp.
- Scalpellum gemma*, Greenland, *scorpio*, China Sea, p. 126, *gibberum*, La Plata, p. 127, *calcaratium*, Pacific Ocean, p. 128, *septentrionale*, North Sea, p. 128, *obesum*, North Sea, p. 129, *erosum*, N. W. Atlantic, p. 129, *aduncum*, on a *Phoxichilidium*, p. 130, *luridum*, Baffin Bay, p. 130, *grönlandicum*, Greenland, *prunulum*, W. Indies, p. 131, *galea*, La Plata, p. 132, *stratum*, W. Indies, p. 132, AURIVILLIUS, Œfv. Ak. Förh. 1892, n. spp.

## LITHOGLYPTIDÆ (n. fam.).

- Lithoglyptes*, n. g., for *L. indicus*, p. 133, *bicornis*, p. 134, *ampulla*, p. 134, Javan Seas, AURIVILLIUS, Œfv. Ak. Förh. 1892, n. spp.

## PANTOPODA.

## TITLES.

- CARPENTER, G. H. (1) Report on the *Pycnogonida* collected in Torres Straits by Prof. A. C. Haddon. Sci. P. R. Dubl. Soc. vii (n.s.) pp. 552-558, pl. xxii.
- (2) Supplement. *Op. cit.* viii, pp. 21-26, pl. ii.
- GAUBERT, P. Autotomie chez les Pycnogonides. Bull. Soc. Z. Fr. xvii, p. 224.
- IVES, J. E. A new species of *Pycnogonum* from California. P. Ac. Philad. 1892, p. 142.
- JOURDAIN, —. Affinites Zoologiques des Pantopodes. C.R. Soc. Biol. 1892, p. 945.
- \*MORGAN, T. H. The relationships of the Sea Spiders. Biol. Lect. Marine Biol. Lab. Woods Holl. pp. 142-167. (*Cf.* Zool. Anz. xv, p. 43.)
- SCHIMKEWITSCH, W. Sur les Pantopodes recueillis par M. le lieutenant G. Chierchia pendant le voyage de la corvette "Vettor Pisani" en 1882-1885. Atti Soc. Rom. Mém. (4), vi, pp. 329-347 (1889). [*Vide* Zool. Rec. xxv, *Arachnida*, p. 24.]

TOPSENT, E. Les Pycnogonides provenant des campagnes du yacht "l'Hirondelle" [Gulf of Gascoyn, Azores, &c.]. Bull. Soc. Z. Fr. xvi, p. 176.

No new species.

### SYSTEMATIC.

- Ammonothea wilsoni*, Isl. Chonos, SCHIMKEWITSCH, Atti Soc. Rom. Mém. (4) vi, p. 336, figg. 16-23, n. sp.
- Ascorhynchus tenuirostris*, Torres Strait, p. 555, pl. xxii, figg. 7-14, CARPENTER, Sci. P. R. Dubl. Soc. (n.s.) vii, n. sp.
- Pallenopsis fluminensis*, Koroy, Abrolhos I., p. 339, figg. 29-31, SCHIMKEWITSCH, Atti Soc. Rom. Mém. (4) vi.
- Parapallene*, n. g. for *Pallene australiensis*, Hoek, and *P. haddonii*, n. sp., Torres Straits; CARPENTER, p. 553, pl. xxii, figg. 1-6, Sci. P. R. Dubl. Soc. (n.s.) vii.
- Phoxichilidium longicolle*, Dohrn, Porto Lagunas, SCHIMKEWITSCH, p. 343, Mém. R. Linc. (4) vi.
- Pycnogonum stearnsi*, California, IVES, P. Ac. Philad. 1892, pp. 142-144, pl. x, n. sp.
- Rhopalorhynchus clavipes*, Torres Straits, CARPENTER, p. 24, pl. ii, figg. 1-10, Sci. P. R. Dubl. Soc. (n.s.) viii, n. sp.
- Tanystylum dohrni*, Abrolhos I., p. 329, figg. 1-4, *calicirostris*, Gulf of Panama, p. 331, figg. 5-7, *chierchia*, Chonos, p. 333, figg. 8-11, SCHIMKEWITSCH, Atti Soc. Rom. Mém. (4) vi, n. spp.

## GIGANTOSTRACA.

### (A.) LIMULUS.

- BERNARD, H. M. The *Apodidae*: a Morphological Study. London: Macmillan & Co., 1892.
- BOUVIER, E. L. Observations sur l'anatomie du système nerveux de la Limule polyphème (*Limulus polyphemus*). Bull. Soc. Philom. (8) iii, pp. 187-198.
- KINGSLEY, J. S. The Embryology of *Limulus*. J. Morph. vii, No. 1, pp. 35-66, pls. v & vi.
- KISHINOUE, K. On the Development of *Limulus longispina*. J. Coll. Sci. Japan, v, pt. 1, pp. 53-100, 7 pls.
- \*SMITH, H. M. Notes on the King Crab Fishery of Delaware Bay. Bull. U. S. Fish. Comm. ix, pp. 363-370.
- VIALLANES, M. H. Études Histologiques et Organologiques sur les centres nerveux et les organes des sens des animaux articulés. 6. Le cerveau de la Limule (*L. polyphemus*). Ann. Sci. Nat. xiv, pp. 405, &c.

## (B.) TRILOBITES.\*

COLE, J. A. The Story of Olenellus. Nat. Science, i, No. 5, pp. 340, &c.

ETHERIDGE, R., & MITCHELL, J. The Silurian Trilobites of New South Wales, with references to those of other parts of Australia. P. Linn. Soc. N.S.W. vi, pp. 311-320, pl. xxv.

*Proetus bowringensis*, Mitch., p. 313, fig. 1; *rattei*, n. sp., p. 316, fig. 2; *australis*, n. sp., p. 318, fig. 3.

GÜRICH, —. Ueber eine Cambrische Trilobiten-Fauna bei Sandomir. J. Ber. Schles. Ges., No. 69, 1891, p. 55.

MATTHEWS, E. F. Notes on Cambrian Fauna. Can. Rec. v, pp. 247-258.

The following *Trilobites* described:—*Protolenus*, Matth., p. 248, *paradoxoides*, fig. 1; *elegans*, fig. 2; *zoppi*, fig. 3. *Ellipsocephalus galeatus*, n. sp., p. 249, fig. 4; *articephalus*, Matth., pp. 250-252, fig. 5; *hoffi*, fig. 6.

POMPECKI, J. F. Bemerkungen über das Einrollungsvermögen der Trilobiten. JH. Ver. Württ. xlviii, pp. 93-101.

---

\* No special attention has been devoted to this Section.

# XI. ARACHNIDA.

BY

R. I. POOCK.

## ARRANGEMENT OF RECORD.

A few changes have been made in the treatment of this section of the ZOOLOGICAL RECORD. The first part contains a complete list of the titles. The second is devoted to papers treating of the anatomy, embryology, physiology, habits, &c. The third part deals similarly with distribution, and the fourth with the purely systematic aspect of the subject. In the latter the sequence of the orders adopted is the same as that put forward in the Ann. N. H. for Jan., 1893; while the families of the larger groups, such as the *Araneæ* and the *Acari*, and the genera that they contain, have been, for the sake of convenience, arranged alphabetically.

For reasons already stated under the heading *Crustacea*, the *Pantopoda* and the *Gigantosthraca* have been transferred from the *Arachnida* to that section of the RECORD which deals with the *Crustacea*.

I. TITLES OF PAPERS, p. 1.	IV. SYSTEMATIC
II. ANATOMY, EMBRYOLOGY, PHYSIOLOGY, HABITS, &c., p. 11.	(A.) <i>Scorpiones</i> , p. 14.
III. DISTRIBUTION, p. 13.	(B.) <i>Pedipalpi</i> , p. 14.
	(C.) <i>Araneæ</i> , p. 14.
	(D.) <i>Pseudoscorpiones</i> , p. 33.
	(E.) <i>Opiliones</i> , p. 34.
	(F.) <i>Acari</i> , p. 35.

## I. TITLES OF PAPERS.\*

ANDREWS, E. A. Notes on the Fauna of Jamaica. Johns Hopk.  
Univ. Circ. xi.  
*Arachnida*, p. 75.

BALZAN, L. Voyage de M. E. Simon au Venezuela : *Chernetes* (*Pseudoscorpiones*). Ann. Soc. Ent. Fr. lx, pp. 497-552, pls. 9-12.

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

- BANKS, N. (1) Mimicry in Spiders. P. E. Soc. Wash. ii, No. 2, pp. 174-176.
- . (2) A new genus of *Phalangiidae*. T. c. pp. 249 & 250.
- . (3) On *Prodidomus rufus*, Hentz. T. c. pp. 259-261.
- . (4) The Spider Fauna of the Upper Lake, Cayuga Basin. P. Ac. Philad. 1892, pt. 1, pp. 11-81.
- . (5) Notes on the *Dysderidae* of the United States. Canad. Ent. xxiii, pp. 207-209.
- BATELLI, A. Notes anatomofisiologiche sugli *Ixodini*. Bull. Soc. Ent. Ital. xxiii, pp. 218-235.
- BECKER, L. Sur le *Pholcus phalangioides*, Fuessly, 1775. Ann. Soc. Ent. Belg. xii, pp. 539 & 540.
- BERLESE, A. *Acari, Myriopoda et Scorpiones hucusque in Italia reperta*. Pts. lxi-lxx, with a special unnumbered part devoted to the *Acari* of the group *Mesostigmata*. Padova, 1892.
- BERNARD, H. M. (1) Are the *Solpugidae* poisonous? Nature, xlv, p. 223.
- . (2) The *Apodidae*, a Morphological Study. Nature Series. London (Macmillan & Co.): 1892.
- . (3) Some Observations on the Relation of the *Acaridae* to the *Arachnida*. J. L. S. xxiv, pp. 279-291, pl. xx.
- . (4) An endeavour to show that the tracheæ of the *Arthropoda* arose from setiparous sacs. Zool. Jahrb. v, p. 511.
- BERTKAU, P. (1) Ueber Sinnesorgane in den Tastern und dem ersten Beinpaare der *Solpugiden*. Zool. Anz. xv, p. 10.
- . (2) Nachträgliche Bemerkungen zu meiner Mittheilung über Sinnesorgane in den Tastern und dem ersten Beinpaare der *Solpugiden*. T. c. p. 110.
- . (3) Zu J. Lebedinsky "Die Entwicklung der Coxaldrüse bei *Phalangium*." T. c. p. 177.
- . (4) Ueber das *Chiracanthium nutrix*. SB. Ver. Rheinl. 1892, p. 102.
- . (5) Bau der Giftdrüse einheimischer Spinnen. CB. Ver. Rheinl. 1892, pt. 1, pp. 59 & 60.
- BIRULA, —. Beiträge zur Kenntniss der anatomischer Baues der Geschlechtsorgane bei den *Galeodiden*. Biol. Centralbl. xii, p. 687.
- BLANCHARD, R. [Remarks upon the observations of F. Heim upon the red pigment of *Trombidium*, cf. HEIM (2).] Bull. Soc. Ent. Fr. 1892, p. 1.
- BOLIVAR, —. Sociabilidad de las arañas. Act. Soc. Esp. xxi, p. 22.

- \*BRANDES, G. Ueber die *Argasidæ*. CB. Ver. Sachr. Thür. 1892, pp. 17-19 & 22.
- BUYSSON, H. [Une rectification (*Chorioptes* doit être substitué à *Symbiotes*).] Bull. Soc. Ent. Fr. 1891, pp. clx & clxi.
- CAMBOUÉ, R. P. (1) Aranéides utiles e nuisibles. Bull. Soc. Acclim. 1887, pp. 1-10.
- . (2) La soie d'Araignée. Rev. Sci. Nat. Appliq. 1892, No. 6, pp. 1-8.
- . (3) Sur l'utilisation de deux Aranéides séricigènes de Madagascar. *Op. cit.* 1889, No. 5, pp. 1-3.
- CAMBRIDGE, O. P. (1) On a new Spider from Calcutta. Ann. N. H. (6) x, p. 417, pl. xxii.  
A species of *Ariamnes*.
- . (2) On the British Species of False-Scorpions. P. Dorset Field Club, xiii, p. 199, &c.
- CAMBRIDGE, F. O. P. (1) British Spiders. Brit. Nat. (Supp.) pts. xiv, xv, xvii, xx, & xxii.  
*Drassus*, *Gnaphosa*, and *Clubiona*.
- . (2) New and Obscure British Spiders. Ann. N. H. (6) x, pp. 384-397, pls. xx & xxi.
- CANESTRINI, E. (1) Sopra due nuove specie di *Fitoptus*. Bull. Soc. Ven.-Trent. v, No. 2, pp. 79 & 80.
- . (2) Sopra due nuove specie di *Fitoptus*. *Op. cit.* xii, p. 377.
- . (3) Sopra due nuovi *Fitoptidi*. *T. c.* p. 379.
- . (4) Sopra tre nuove specie di *Fitoptidi* Italiani. Atti Ist. Venet. 1, pp. 837-839 (1891-92).
- . (5) Sopra due nuove specie di *Fitoptidi* Italiani. *Op. cit.* li, pp. 5 & 6 (1892-93).
- CARLINI, A. DE. Artropodi di Val Vigazzo. Bull. Soc. Ent. Ital. 1892, pt. 1 : *Araneæ* and *Opiliones*, pp. 90 & 91.
- CARPENTER, G. H. (1) The Walk of Arthropods. Nat. Sci. i, p. 676, &c.
- . (2) Notes on the Development and Structure of Arachnids. *Op. cit.* No. 7, pp. 522-527.
- CAUSARD, M. Sur la circulation du sang chez les jeunes Araignées. C.R. cxiv, p. 1035.
- \*CHYZER, C., & KULCZYNSKI, L. *Araneæ Hungariæ*, &c. Berlin (R. Friedländer) : 1892.
- CHYZER, C. Ueber eine neue Spinnenfauna Ungarns. Math. Nat. Ber. Ung. x, pp. 108-118.
- Notes upon synonyms, &c., of certain species described in the above cited work on Hungarian Spiders, by Chyzer & Kulczynski.

- COSTA, A. Sugli effetti del veleno della Scorpione Tunisino (*Buthus tunetanus*) nell' uomo. Rend. Acc. Nap. (2) vi, pp. 144-146.
- \*CURTICE, C. The Biology of the Cattle Tick. J. Comp. Med. Vet. Arch. 1891, pp. 313-319.
- CURTIS, J. S. A New Jumping Spider. Zoe, iii, pp. 332-337.
- DAMIN, N. (1) O pauku: *Uloborus walckenaeri* (Latr.). Glasnik Naravosl. Druzt. vi, pp. 220-223, pl. iv.
- (2) Iz zivota pauku *Argiope bruennichi* (Scop.). Op. cit. vii, pts. 1-6, pp. 211-220, pl. vi (1892).
- DISTANT, W. L. Are the *Solpugidae* poisonous? Nature, xlv, p. 247.
- DU ROSELLE, —. Contributions a la Faune locale—Arachnides. Bull. Soc. L. Nord. France, x, pp. 340-343 (1890-91).
- ENOCK, F. Additional Notes and Observations on the Life-history of *Atypus piceus*. Tr. E. Soc. 1892, pp. 21-26.
- FLOGEL, J. H. L. Ueber das Nervensystem von *Demodex folliculorum*. Verh. Ges. Nat. Ärzte, lxiv, pp. 120 & 121.
- FOCKEU, H. Étude sur quelques Galles de Syrie. Rev. Biol. iv, pp. 152-160 & 231-234.
- FOX, W. H. A List of the Spiders from Indiana. P. E. Soc. Wash. ii, No. 2, p. 224.
- GARMAN, H. (1) The Origin and Development of Parasitism among the *Sarcoptidae*. Ins. Life, iv, pp. 182-187.
- (2) American *Phytoptocidii*. Psyche, vi, pp. 241-246, 1 pl.
- GAUBERT, P. (1) Sur les muscles des membres et sur l'homologie des articles des Arachnides. Bull. Soc. Philom. (8) iv, No. 1, pp. 31-33.
- (2) Sur un ganglion nerveux des pattes du *Phalangium opilio*. C.R. cxv, p. 960.
- (3) Sur l'autotomie chez les Araignées. Bull. Soc. Philom. (8) iv, pp. 78 & 79.
- (4) Observations sur les pièces buccales des Aranéides. T. c. pp. 80 & 81.
- (5) Recherches sur les organes des sens et sur les systèmes tégumentaires, glandulaires, et musculaires des appendices des Arachnides. Ann. Sci. Nat. xiii, pp. 1-184, 4 pls.
- GÖLDI, E. A. Zur Orientierung in der Spinnenfauna Brasiliens. MT. Osterlande, v, pp. 200-248.
- GOYEN, P. On New Zealand *Aranee*. Tr. N. Z. Inst. xxiv, pp. 253-257.
- GREEN, E. E. Remarkable Weapons of Defence. Nature, xlvii, p. 199.
- Distastefulness of *Holothyrus coccinella*.

- GREVÉ, C. Beobachtungen an zwei lebenden Arthropoden aus Mittel-Amerika. Zool. Jahrb. vi, p. 461.  
On a Scorpion (*Centrurus biaculeatus*).
- HASSELT, A. W. M. VAN. (1) Waarnemingen omtrent de biologie van *Celotes atropos*, Walek. Tijdschr. Ent. xxxiii, pp. xiv-xvi.  
— (2) Over de parasieten der Spinnen. *Op. cit.* xxxv, pp. xxxviii-xli.
- HEIM, F. [Sur le pigment de la larve de *Trombidium fuliginosum*.] Bull. Soc. Ent. Fr. 1892, pp. xlix-l.
- HOWARD, L. O. Hymenopterous Parasites of Spiders. P. E. Soc. Wash. ii, No. 3, pp. 290, &c.
- IMHOR, O. E. Die Zusammensetzung der pelagischen Fauna der Süßwasserbecken. Biol. Centralbl. xii, pp. 171, &c.
- JAWOROWSKI, A. (1) Ueber die Extremitäten, deren Drüsen und Kopfsegmentierung bei *Trochosa singoriensis*. Zool. Anz. xv, p. 197.  
\* — (2) Homologie der Gliedmassen bei Arachniden und Insekten. Kosmos Lemberg, 1891, ii, pp. 1-15, 4 figures.
- JOHNSON, H. P. Amitosis in the Embryonal Envelopes of the Scorpion. Bull. Mus. C. Z. xxii, pp. 127-160.
- JONES, K. H. A few Remarks on our Commonest Spiders. Sci. Goss. 1892, pp. 73-75.
- JOURDAIN, S. Sur le mode de fixation des larves parasites hexapodes des Acariens. C.R. cxv, p. 621.
- KAFKA, J. Die Fauna des Böhmischen Teiche. Arch. naturw. Landesforsch. Böhmen, viii, No. 2, pp. 1-115.  
*Hydrachnida*, pp. 107-109.
- KARPELLES, L. Ueber einen eigenthümlichen Parasiten der Krönteube. SB. z.-b. Wien, xlii, pp. 46 & 47.
- KARSCH, F. (1) Arachniden von Ceylon und von Minikoy gesammelt von den Herren Doctoren P. und F. Sarasin. B. E. Z. xxxvi, pt. ii, pp. 267-310, 3 pls.  
— (2) Ueber *Cryptostemma*, Guér., als einzigen recenten Ausläufer der fossilen Arachnoideen-Ordnung der *Meridogastra*, Thor. *Op. cit.* xxxvii, pp. 25-32, pl. iv.  
— (3) Nachschrift zu meinem Aufsätze über *Cryptostemma*, Guér. T. c. p. 64.
- KELLICOTT, D. S. *Hypoderas columbæ*: a Note. Ins. Life, v, pp. 77 & 78.
- KENNEL, J. v. Dei Verwandtschaftsbeziehungen und die Abstammung der Tardigraden. SB. Ges. Dorp. 1891, pp. 504-512.

- KEYSERLING, E. (1) Die Spinnen Amerikas. Brasilianische Spinnen. Nürnberg (Bauer & Raspe) : 1891.  
Not seen by Recorder in 1891.
- \*——. (2) Die Spinnen Amerikas—*Epeiridae*. Nürnberg (Bauer & Raspe) : 1892, pt. iv, No. 1.
- KIEFFER, J. J. Des Acarocécidies de Lorraine. Feuill. Nat. xxii, pp. 97–104, 118–129, 141–147, & 162–165.
- KISHINOUE, K. On the Lateral Eyes of Spiders. J. Coll. Sci. Japan, v, pp. 101–103.
- KENIKE, F. (1) Anmerkungen zu Piersig's Beitrag zur Hydrachnidenkunde. Zool. Anz. xv, p. 263.
- . (2) Zwei neue Hydrachniden-Gattungen aus dem Rhätikon. T. c. pp. 320 & 325.
- KOJEVNIKOV, G. La faune de la mer Baltique orientale et les problèmes des explorations prochaines de cette faune. Congr. Internat. Zool. 1892, pt. i, pp. 132, &c.
- KOVALEVSKY, A. Sur les organes excréteurs des Arthropodes terrestres. T. c. pp. 187, &c.  
*Araneæ*, p. 216 ; *Scorpiones*, p. 228.
- KRAMER, P. Zur Entwicklungsgeschichte und Systematik der Süßwassermilben. Zool. Anz. xv, p. 149.
- LAURIE, M. On the Development of the Lung-books of *Scorpio fulvipes*. Zool. Anz. 1892, No. 386, pp. 101–105.
- LAVERAN, A. Acariens de l'oreille chez le lapin, paraphlégie reflexe. C.R. Soc. Biol. 1892, p. 169.
- LEBEDINSKY, J. Die Entwicklung des Coxaldrüse bei *Phalangium*. Zool. Anz. xv, p. 131.
- LEWIS, R. T. (1) Notes on the process of Oviposition as observed in a species of Cattle Tick. J. R. Mic. Soc. 1892, No. 4, pp. 449–454, 1 pl.
- . (2) Note on a species of *Ixodes*. J. Quek. Club (2) v, pp. 10–14, 1 pl.
- MARCHAL, P. La glande coxale du Scorpion et ses rapports morphologiques avec les organes excréteurs des Crustacés. C.R. cxv, p. 191. [Translated in Ann. N. H. (6) x, p. 338.]
- MARX, G. (1) A contribution to the Study of the Spider Fauna of the Arctic Regions. P. E. Soc. Wash. ii, No. 2, p. 186.
- . (2) Notes on the Classification of the *Ixodidae*. T. c. p. 232.
- . (3) Contributions to the Knowledge of the Life-history of *Arachnida*. T. c. p. 252.
- Observations on *Thelyphonus* and *Datames*.

- [MARX, G.] (4) [Remarks upon the Distribution of *Drassidæ* and *Attidæ*.] *T. c.*, No. 2, p. 251.
- (5) A list of the *Araneæ* of the District of Columbia. *T. c.* p. 148.
- (6) On the Morphology of the Ticks. *Op. cit.* ii, No. 3, pp. 271-287.
- MAZZA, F. Contribuzione all'anatomia macro- e microscopica del *Pentastomum moniliforme*, Dies. *Atti Univ. Genova*, 1891, pp. 1-45.
- MCCOOK, H. C. *Drexelia*, a new genus of Spiders. *P. Ac. Philad.* 1892, p. 127.
- MEADEN, C. W. Bite of the Tarantula (*Mygale*) Spider. *Trinidad Nat. Club*, i, No. 5, pp. 127 & 128.
- MEGNIN, P. (1) Acariens des oreilles chez le chat, le furet, et le chien. *C.R. Soc. Biol.* 1892, p. 125.
- (2) Un dernier mot sur la question de l'épilepsie de nos Carnassiers domestiques. *T. c.* p. 142.
- \* — (3) Les Acariens parasites. Paris (Gauthier-Villars et fils): 1892. (*Cf. Zool. Anz.* xvi, p. 54.)
- MICHAEL, A. D. (1) On the variations in the internal anatomy of the *Gammarinæ*, especially in that of the genital organs, and in their mode of coition. *Tr. L. S.* v, pt. 9, pp. 281-324.
- (2) Ticks. *Nat. Sci.* i, No. 3, pp. 200-204.
- MONIEZ, R. (1) Note sur l'*Arrhenurus decurtator*, n. sp. *Rev. Biol.* iv, p. 520.
- (2) Mémoire sur quelques Acariens et Thysanoures parasites ou commensaux des Fourmis. *T. c.* pp. 377-389.
- (3) Contribution à l'histoire naturelle du *Tyroglyphus mycophagus*, Mégn. *Mém. Soc. Zool.* v, pt. 4, pp. 584-601.
- MORIN, J. Studien über Entwicklung der Spinnen. (Printed in Russian.) *Zapiski Novoross. Obsch. Estestv.* 1888, pp. 1-112, 4 pls.
- MOSLEY, S. L. Yorkshire Galls. *Naturalist*, 1892, pp. 273-278.
- NALEPA, A. (1) Neue Gallmilben. *SB. Ak. Wien*, 1892, p. 16.
- (2) Neue Gallmilben. *T. c.* p. 128.
- (3) Neue Arten der gattung *Phytoptus*, Duj., und *Cecidophyes*, Nal. *T. c.* p. 155.
- (4) Neue Gallmilben. *T. c.* pp. 190-192.
- (5) *Tegonotus*, ein neues Phytoptiden genus. *Zool. Jahrb.* vi, p. 327, 1 pl.
- PECKHAM, G. W. & E. G. Ant-like Spiders of the family *Attidæ*. Vol. II. of the Occasional Papers of the Nat. Hist. Soc. Wisconsin. Milwaukee: 1892, pp. 1-83, pls. i-vi.

- PIERSIG, R. (1) Beitrag zur Hydrachnidenkunde. Zool. Anz. xv, p. 151.
- . (2) Beiträge zur Kenntniss der im Susswasser lebenden Milben. *T. c.* pp. 338 & 341.
- . (3) Eine neue Hydrachniden-gattung aus dem sächsischen Erzgebirge. *T. c.* p. 408.
- POCOCK, R. I. (1) Report upon a small collection of Scorpions sent to the British Museum by Mr. Edgar Thurston, of the Government Central Museum, Madras. J. A. S. (Bombay) vii, No. 3, pp. 295-312.
- . (2) Descriptions of two new genera of Scorpions, with Notes upon some species of *Palamnceus*. Ann. N. H. (6) ix, pp. 38-49, pl. iii*b*.
- . (3) Description of a new Trap-door Spider from Ceylon. *T. c.* pp. 49-51.
- . (4) Supplementary Notes on the *Arachnida* and *Myriopoda* of the Mergui Archipelago, &c. J. L. S. xxiv, pp. 316-318.
- . (5) *Liphistius* and its bearing upon the Classification of Spiders. Ann. N. H. (6) x, pp. 306-314.
- . (6) *Arachnida* and *Myriopoda* in W. L. Distant's Naturalist in the Transvaal. London (R. H. Porter): 1892, pp. 179-184.
- . (7) On the . . . . . *Arachnida* collected by Dr. Anderson in Algeria and Tunisia. P. Z. S. 1892, pt. 1, pp. 24-28.
- PUGA-BORRE, F. El *Lathrodectus formidabilis* de Chile. Act. Soc. Sci. Chili, ii, pt. 1, pp. 3-176, & pt. 2, pp. 271-296.
- PURCELL, F. (1) Bau der Phalangiden-agen. Verh. deutsch. Zool. Ges. 1892, pp. 141 & 142.
- . (2) Ueber den Bau und die Entwicklung der Phalangiden-agen. Zool. Anz. xv, p. 461.
- RAILLIET, A., & CADIOT, —. Observations et expériences sur l'otocariase symbiotique des Carnassiers. C.R. Soc. Biol. (9) iv, No. 5, pp. 104-108.
- RAILLIET, A. (1) Simples remarques historiques sur l'otocariase des Carnivores. *Op. cit.* 1892, p. 126.
- . (2) Recherches sur la transmissibilité de la gale du Chat et du Lapin due au *Sarcoptes minor*, Fürst. *Op. cit.* (9) iv, No. 4, pp. 315-319.
- RATZ, S. VON. Von der aktiven Wanderung der *Pentastomum denticulatum*. CB. Bakt. Parasit. xii, pp. 329-333.
- ROSELLE, DU. [See DU ROSELLE.]

- SCHLECHTENDAL, D. VON. (1) Die Gallbildungen deutscher Gefäßpflanzen. J. Ber. Ver. Zwickau, 1891 [1892], pp. 1-10.
- . (2) Ueber das Eierlegen der Ixodes Weibchen. *T. c.* pp. 11-14,
- SCHNEIDER, A. *Mélanges Arachnologiques*. Pt. I. Sur l'endothélium des vaisseaux. Pt. II. Sur le poumon des Aranéides, 3 pls. Pt. III. Sur le système artériel du Scorpion. Pt. IV. Système artériel des Aranéides. *Tabl. Zool.* ii, pp. 135-198.
- SIMON, E. (1) Liste des Arachnides recueillis en Syrie par M. le docteur Barrois. *Rev. Biol.* v, pp. 80-84.
- . (2) [Descriptions de deux Arachnides nouveaux du Portugal.] *Bull. Soc. Ent. Fr.* 1892, pp. cxciv & cxcv.
- . (3) Liste des espèces de la famille des *Aviculariides* qui habitent l'Amerique du Nord. Appendice. Liste des *Aviculariides* qui habitent le Mexique et l'Amerique centrale. *Act. Soc. L. Bord.* xlv, pp. 307-339.
- . (4) Descriptions d'espèces et de genres nouveaux de la famille des *Aviculariidae*. *Ann. Soc. Ent. Fr.* lxi, pp. 271-284.
- . (5) Arachnides des Iles Philippines. *T. c.* pp. 35-52.
- . (6) Histoire naturelle des Araignées. Vol. i, pt. 1, pp. 1-254. Paris : 1892.
- . (7) Arachnides d'Islande. *Bull. Soc. Ent. Fr.* lx, p. clxxvi.
- SLINGERLAND, M. V. The Pear-leaf Blister Mite (*Phytoptus pyri*). *Ins. Life*, v, No. 2, pp. 104-106.
- SMALIAN, —. *Argas reflexus* in Aschersleben. *CB. Ver. Sachs. Thür.* 1892, pp. 18, 19, 29, & 30.
- SPENCER, W. BALDWIN. The Anatomy of *Pentastomum teretiusculum*, Baird. *Q. J. Micr. Sci.* xxxiv, pp. 1-73, 9 pls.
- STILES, C. W. The Histology of *Boophilus*. Abstract. *P. E. Soc. Wash.* ii, No. 3, pp. 303 & 304.
- STOLL, OTTO. *Arachnida acaridea* in *Biologia Centrali-Americana*. Godman & Salvin, London, March, 1890 ; Jan. 1893.
- Diagnoses of new species, with list of the species of *Acar*i hitherto described from Mexico and Central America.
- STRUBELL, A. Zur Entwicklungsgeschichte der Pedipalpen. *Zool. Anz.* xv, pp. 87 & 89. Trans. in *Ann. N. H.* (6) x, p. 419.
- THORELL, T. (1) Étude sui Ragni Malesi e Papuani. Part iv. *Ann. Mus. Genov.* xxxi, pp. 1-490, 1891-1892.
- . (2) On some Spiders from the Andaman Islands, collected by E. W. Oates, Esq. *Ann. N. H.* (6) ix, pp. 226-237.

- [THORELL, T.] (3) *Novæ species Araneorum a Cel. Th. WORKMAN in ins. Singapore collectæ.* Bull. Ent. Ital. xxiv, pt. 3, pp. 211-282.
- TROUESSART, E. *Considérations générales sur la classification des Acariens, suivies d'un essai de classification nouvelle (concluded).* Rev. Sci. Nat. Ouest, ii, pp. 20-54.
- URQUHART, A. T. (1) *Catalogue of the Described Species of New Zealand Araneide.* Tr. N. Z. Inst. xxiv, pp. 220-230.
- . (2) *Descriptions of New Species of Araneæ.* T. c. pp. 230-253.
- VEJDOVSKY, J. F. (1) *Sur la question de la segmentation de l'œuf et la formation du blastoderme des Pseudoscorpionides.* Congr. Internat. Zool. ii, No. 1, pp. 120-125.
- . (2) *Sur un organe embryonnaire des Pseudoscorpionides.* T. c. pp. 126-131.
- WAGNER, J. *Zur Entwicklungsgeschichte der Milben. Furchung des Eies, Entstehung der Keimblätter und Entwicklung der Extremitäten bei Ixodes.* Zool. Anz. xv, p. 316.
- WAGNER, F. VON. *Biologische Notiz.* T. c. p. 434.  
Tipula and Pseudoscorpion.
- WARBURTON, C. *Spiders from Madeira.* Ann. N. H. (6), x, pp. 216-228, 1 pl.
- WEED, C. M. (1) *The Ash-grey Harvest Spider.* Am. Nat. xxvi, p. 32.
- . (2) *The Striped Harvest Spider: a Study in variation.* T. c. pp. 999-1008.
- . (3) *The Cattle Tick.* T. c. pp. 530 & 531.
- . (4) *Harvest Spider. Notes.* T. c. p. 786.
- . (5) *Protective Resemblance in Trombidium.* T. c. p. 786.
- . (6) *Some Florida Spiders.* T. c. p. 873.
- WOOD, F. H. *Notes on Spiders.* J. Northampt. Soc., No. 51, pp. 81-91.
- WORKMAN, T. & M. E. *Malaysian Spiders: pt. 1.* Belfast (Ireland): 1892.  
Coloured figures, with drawings in outline, of eyes, sexual organs, &c., accompanied by brief descriptions of structure, form of snare, habits, &c.
- ZOGRAF, N. *Sur l'origine et les parentes des Arthropodes, principalement des Arthropodes trachéates.* Congr. Internat. Zool. 1892, pt. i, pp. 278, &c.

## II.—ANATOMY, EMBRYOLOGY, PHYSIOLOGY, HABITS, &c.

### ARACHNIDA (as a whole).

Notes on development and structure of *Arachnida* ; CARPENTER.—Relationship between the *Arachnida* and other *Arthropoda* ; BERNARD (2).—Relation of the *Acari* to other *Arachnida* ; BERNARD (3).

Muscles of the limbs and homology of the limb-segments in *Arachnida* ; GAUBERT (1).

Tracheæ, origin of ; BERNARD (4).

Organs of touch and integumentary glands of *Arachnida* ; GAUBERT (5).

### SCORPIONES.

Excretory organs ; KOVALEVSKY.—Arterial system ; SCHNEIDER.

Observations on a living Scorpion ; GREVÉ.

Poison of *Buthus* ; COSTA.

Amitosis in the embryonal envelopes ; JOHNSON.—Development of the lung-books in *Scorpio fulvipes* ; LAURIE.

Coxal gland ; MARCHAL.

### PEDIPALPI.

Habits of *Thelyphonus* ; MARX (3).—Development of *Thelyphonus* ; STRUBELL.

### ARANEÆ.

Habits ; WOOD.—Remarks upon common Spiders ; JONES.—Autotomy ; GAUBERT (3).—Sociability ; BOLIVAR.—Habits of *Atypus* ; ENOCK : of *Uloborus* and *Argiope* ; DAMIN.—On *Lathrodectus formidabilis* ; PUGA-BORRE.—On *Chiracanthium* ; BERTKAU (4).—Biology of *Celotes atropos* ; HASSELT.—Notes on *Pholcus* ; BECKER.

Mimicry ; BANKS (1).—*Marptusa* imitating flies ; GOYEN, p. 254.

Parasites of Spiders ; HASSELT (2), HOWARD.

Utilisation of Spiders' silk ; CAMBOUÉ (2 & 3).—Useful and hurtful Spiders ; CAMBOUÉ (1).

Classification of *Araneæ* ; POCKOCK (5), SIMON (6).

Development of Spiders ; MORIN.—Development of the lateral eyes ; KISHINOUE.

Segmentation of the head and the form of the appendages in young *Trochosa* ; JAWOROWSKI.

Poison glands ; BERTKAU (5).—Effects of the bite of *Mygale* ; MEADEN.

Arterial system; SCHNEIDER.—Circulation of blood in young Spiders; CAUSARD.

Mouth parts; GAUBERT (4).—Excretory organs; KOVALEVSKY.—Lung-books; SCHNEIDER.

## SOLIFUGÆ.

Habits of *Datames*; MARX (3).

Poison glands; BERNARD (1), DISTANT.—Sense organs; BERTKAU (1 & 2).—Generative organs; BIRULA.

## PSEUDOSCORPIONES.

Pseudoscorpion and *Tipula*, Habits; WAGNER, F.

Embryology; VEJDOVSKI.

## OPILIONES.

Coxal glands of *Phalangium*; BERTKAU (3), LEBEDINSKY.—Nervous system of the feet of *Phalangium*; GAUBERT (2).—Eyes of *Phalangidæ*; PURCELL (1 & 2).

## ACARI.

On Ticks; MICHAEL (2).—Morphology of Ticks; MARX (6).

*Acari* in Ants' nests; MONIEZ (2).—Life-history of the Cattle-Tick; CURTICE.—Natural history of *Tyroglyphus*; MONIEZ (3).—The mode of fixation of the hexapodous larvæ of *Acari*; JOURDAIN.—Oviposition of *Ixodes*; LEWIS (1), SCHLECHTENDAL (2).—Freshwater Mites; PIERSIG (1, 2, 3).—On *Phytoptus pyri*; SLINGERLAND.

Distastefulness of *Holothyrus*; GREEN.—Protective resemblances of *Trombidium*; WEED.

Pigment of *Trombidium*; HEIM, BLANCHARD.

Origin of parasitism in *Sarcoptidæ*; GARMAN (1).—Parasites of Pigeons; KARPELLES, KELLICOTT.—Effects of *Acari* in ears of Mammals; LAVERAN, MEGNIN (1 & 2), RAILLIET (1 & 2), RAILLIET & CADIOT.

Classification of *Acari*; TROUESSART: of *Ixodidæ*; MARX (2).

Histology of *Boophilus*; STILES.—Anatomy of *Gamasidæ*; MICHAEL (1).—Anatomy and physiology of *Ixodes*; BATELLI.—Nervous system of *Demodex*; FLOGEL.

Development of *Ixodes*, WAGNER, J.: of freshwater Mites, KRAMER.

## TARDIGRADA.

Affinities of *Tardigrada*; KENNEL.

## PENTASTOMIDA.

Anatomy of *Pentastomum*; MAZZA.—Anatomy of *Pentastomum teretiusculum*; SPENCER.

Migration of *Pentastomum*; RATZ.

## III.—DISTRIBUTION.

On the distribution of *Attidæ* and *Drassidæ*; MARX (4).

*Holarctic Region.*

- Arctic Regions : Spiders ; MARX (1).—Iceland : *Arachnida* ; SIMON (7).  
 Britain : *Pseudoscorpiones* ; O. P. CAMBRIDGE (2), *Araneæ* ; F. O. CAMBRIDGE.—Yorkshire : Galls ; MOSLEY.  
 France : Spiders ; DU ROSELLE.  
 Lorraine : *Phytoptus*-galls ; KIEFFER.  
 Germany : *Phytoptus*-galls ; SCHLECHTENDAL (1).  
 Eastern Baltic : *Halacari* ; KOJEVNIKOV.  
 Hungary : Spiders ; CHYZER.—Bohemia : *Hydrachnida* ; KAFKA.  
 Italy : *Phytoptidæ* ; CANESTRINI (1-5), *Araneæ* and *Opiliones* ; CARLINI.  
 Portugal : Spiders ; SIMON (2).  
 Algeria and Tunisia : *Arachnida* ; POCKOCK (7).  
 Madeira : Spiders ; WARBURTON.  
 Syria : *Phytoptid*-galls ; FOCKEU.—*Arachnida* ; SIMON (1).  
 N. America : *Aviculariidae* ; SIMON (3).—*Phytoptid*-galls ; GARMAN (2).—*Opiliones* ; WEED (1, 2, & 4).  
 Columbia : Spiders ; MARX (5).  
 Cayuga Lake : Spiders ; BANKS (4).  
 United States : *Dysderidæ* ; BANKS (5).  
 Indiana : Spiders ; FOX.  
 Florida : Spiders ; WEED (6).

*Neotropical Region.*

- Central America and Mexico : *Aviculariidae* ; SIMON (3) : *Acari*, STOLL.  
 Jamaica : ANDREWS.  
 Venezuela : *Pseudoscorpiones* ; BALZAN.  
 Brazil : Spiders ; GÖLDI, KEYSERLING.

*Australian Region.*

- New Zealand : Spiders ; URQUHART (1 & 2), and GOYEN.

*Oriental Region.*

- India : Scorpions ; POCKOCK (1).—Ceylon : *Arachnida* ; KARSCH (1).—  
 Andaman Is. : Spiders ; THORELL (2).—Mergui Archipelago : *Arachnida* ;  
 POCKOCK (4).—Singapore : Spiders ; THORELL (3).—Malaysia : Spiders ;  
 WORKMAN.—Malaysia and Papua : Spiders ; THORELL (1).—Philippine  
 Islands : *Arachnida* ; SIMON (5).

*Ethiopian Region.*

- Transvaal : *Arachnida* ; POCKOCK (6).

## IV.—SYSTEMATIC.

## (A.) SCORPIONES.

- Isometrus thurstoni*, Madras, Sheveroy Hills, pp. 297-300, Pocock, J. A. S. B. vii, n. sp.
- Archisometrus scaber*, n. sp., Madras, with notes upon *tricarinatus*, Simon, and *shoplandii*, Oates, pp. 300-303; Pocock, J. A. S. B. vii.
- Buthus martensii*, Karsch, ? syn. *B. tamulus*, Fabr., p. 303; Pocock, J. A. S. B. vii.
- B. tadmorensis*, Palmyra, p. 84, SIMON, Rev. Biol. v, n. sp.
- Heterocharmus*, n. g., p. 46, for *H. cinctipes*, n. sp., ? India or Ceylon, pp. 47 & 48, pl. iiib, figg. 2 & 2b; Pocock, Ann. N. H. (6) ix.
- Stenochirus*, n. g., of *Buthidae*, p. 305, for *S. sarasinorum*, n. sp., Peradenia, p. 306, pl. xii, fig. 30; KARSCH, B. E. Z. xxxvi.
- Hormurus laviceps*, Pocock, Tranquebar and Sheveroy Hills, discussed; Pocock, pp. 303 & 304, J. A. S. B. vii.
- Cheloctonus*, n. g., for *C. jonesii*, n. sp., Transvaal, pp. 44-46, pl. iiib, fig. 1; Pocock, Ann. N. H. (6) ix.
- Palamneus spinifer*, Hempr. & Ehrb., syn. *petersii*, Thorell, 1876, from Calcutta, Singapore, &c., and *thorellii*, n. sp., syn. *bengalensis*, Sim., and *petersii*, Thorell, 1889, from Burma, pp. 38-43; Pocock, Ann. N. H. (6) ix.
- Scorpio swammerdami*, Simon, syn. *S. afer*, Koch, p. 304; *fulvipes*, Koch, ? syn. *afer*, Herbst, described, pp. 304-307; *phipsoni*, n. sp., Madras and Sheveroy Hills, pp. 307-309; *caesar*, C. Koch, *scaber*, Thorell, *bengalensis*, C. Koch, *indicus*, Linn., and *humilis*, Simon, discussed, pp. 309-312; Pocock, J. A. S. B. vii.

## (B.) PEDIPALPI.

## PEDIPALPI, AMBLYPYGI.

- According to SIMON, Ann. Soc. Ent. Fr. lxi, pp. 45-52, this suborder contains the single family *Tarantulidæ*, which is divided into the *Charontinæ*, *Phryniscinæ*, and *Tarantulinæ*. The *Charontinæ* contain *Charon*, *Catageus*, and the new genera *Charinus*, based upon *australianus*, L. Koch, and *Sarax*, of which *brachydactylus*, Simon, is the type, p. 48. The *Phryniscinæ* contain *Phryniscus* and *Damon*, and the *Tarantulinæ*, *Admetus* and *Tarantula*, p. 51, pl. ii, figg. 9-16.
- Sarax*, n. g., p. 43, for *S. brachydactylus*, n. sp., in Cave, Luzon; SIMON, Ann. Soc. Ent. Fr. lxi.

## (C.) ARANEÆ.

## AGALENIDÆ.

- Campostichomma*, n. g., p. 295, for *C. manicatum*, n. sp., Ceylon, p. 296, pl. xii, fig. 19; KARSCH, B. E. Z. xxxvi.

- Cicurina creber*, p. 26, pl. i, fig. 76, *placida*, p. 27, fig. 77, Cayuga Lake, BANKS, P. Ac. Philad, 1892, n. spp.  
*Celotes longitarsus*, Em., p. 24, pl. iv, fig. 73; BANKS, P. Ac. Philad. 1892.  
*C. fidelis*, p. 24, pl. 1, fig. 72, *altilis*, p. 25, pl. i, fig. 74, & pl. iv, fig. 74, *lineatus*, p. 25, *gnarvus*, p. 26, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.  
*Cybæus giganteus*, Cayuga Lake, BANKS, P. Ac. Philad. 1892, p. 23, pl. 1, fig. 71, n. sp.

## ATTIDÆ.

- Admestina wheeleri*, Peck., p. 78, Cayuga Lake, BANKS, P. Ac. Philad. 1892.  
*Attus coronatus*, Madagascar, CAMBOUÉ, p. 4, Bull. Soc. Acclim. 1887;  
*A. maderiana*, Madeira, p. 217, pl. xiv, fig. 1, WARBURTON, Ann. N. H. (6) x : n. spp.  
*Bathippus*, n. g., for *B. macilentus*, n. sp., Sumatra, pp. 402-406; THORELL, Ann. Mus. Genov. xxxi.  
*Bellota*, n. g., p. 67, *formica*, Tacz., Venezuela, Peru, p. 68, pl. v, fig. 5; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.  
*Bianor leucostictus*, pp. 252-256, *balius*, pp. 256-259, *incitatus*, pp. 259-262, Sumatra, THORELL, Ann. Mus. Genov. xxxi, n. spp.  
*Bindax*, n. g. for *B. chalccephalus*, Thor., p. 411; THORELL, Ann. Mus. Genov. xxxi.  
*Bocus*, n. g., p. 38, for *B. excelsus*, n. sp., Luzon, p. 39, pl. iii, fig. 4; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.  
*Bootes ephippiger*, Sim., Sumatra, described, pp. 375-379; THORELL, Ann. Mus. Genov. xxxi.  
*Chrysilla*, n. g., p. 315, for *C. delicata*, n. sp., p. 316; THORELL, Ann. Mus. Genov. xxxi.  
*C. debilis*, p. 319, *doriæ*, p. 321, Sumatra, THORELL, Ann. Mus. Genov. xxxi, n. spp.  
*Cocalus ramipalpis*, Sumatra, p. 353, THORELL, Ann. Mus. Genov. xxxi, n. sp.  
*Carrhotus*, n. g. for *C. viduus*, C. Koch, Java, p. 407; THORELL, Ann. Mus. Genov. xxxi.  
*Dendryphantes insignis*, pl. v, fig. 28, *ornatus*, pl. iv, fig. 29, & pl. v, fig. 29, *exiguus*, pl. v, fig. 30, pp. 74 & 75, Cayuga Lake, BANKS, P. Ac. Philad. 1892; *D. æneolus*, California, pp. 332-337, CURTIS, Zoe, iii : n. spp.  
*Descanso*, n. g., p. 72, for *D. vagus*, n. sp., Santarem, p. 72, pl. v, fig. 9; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.  
*D. chapado*, Brazil, p. 73, pl. vi, fig. 1, PECKHAM, Nat. Hist. Soc. Wisconsin, ii, n. sp.  
*Dischiropus*, n. g., p. 299, for *D. alticinctus*, n. sp., Ceylon, p. 300, pl. xii, fig. 26; KARSCH, B. E. Z. xxxvi.

- Emertonius*, n. g., p. 54, for *E. exasperans*, n. sp., Java, p. 54, pl. iv, fig. 8; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Epocilla*, n. g., p. 309, for *E. prætextata*, n. sp., Java, p. 310; THORELL, Ann. Mus. Genov. xxxi.
- Erica*, n. g., p. 55, for *E. eugenia*, n. sp., Brazil, p. 55, pl. iv, fig. 9; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Euophrys giebelii*, Java, pp. 357-360, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- E. pygæa*, Thor., figured, pl. 6; WORKMAN, Malaysian Spiders, pt. 1.
- Fluda*, n. g., p. 57, for *F. narcissæ*, n. sp., Brazil, p. 57, pl. iv, fig. 10; *F. ruficeps*, Tacz., Peru, p. 58, pl. iv, fig. 3; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Gelotia*, n. g., pp. 344 & 345; *G. frenata*, Sumatra, pp. 345-348, *bimaculata*, Sarawak, pp. 348-351, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Hasarius seylax*, pp. 413-417, *simonis*, pp. 418-423, *workmanii*, pp. 423-426, *coprea*, pp. 431-436, *sobarus*, pp. 436-440, Sumatra, *dispalans*, pp. 440-443, *mccookii*, pp. 443-449, Java, THORELL, Ann. Mus. Genov. xxxi; *H. arcigerus*, Ceylon, p. 302, pl. xii, fig. 29, KARSCH, B. E. Z. xxxvi : n. spp.
- Harmochirus nervosus*, Sumatra, pp. 246-250, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Hermosa*, n. g., p. 53, for *H. volatilis*, n. sp., Madagascar, p. 53, pl. iv, fig. 7; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Homalattus latidens*, Dol., Java, pp. 262-268; *bufo*, Dol., Sumatra, pp. 275-278, described; THORELL, Ann. Mus. Genov. xxxi.
- H. mordax*, Java, pp. 268-275, *nobilis*, Celebes, pp. 278-282, THORELL, Ann. Mus. Genov. xxxi; *H. laminatus*, Dambulla, p. 298, pl. xii, fig. 23, *reductus*, p. 298, fig. 24, *cingulatus*, p. 299, fig. 25, Ceylon, KARSCH, B. E. Z. xxxvi : n. spp.
- Hyllus giganteus*, C. Koch, *walcknaerii*, White, Celebes, *mutillarius*, C. Koch, Sumatra, *lacertosus*, C. Koch, n. var., *borneensis*, Borneo, pp. 379-386; THORELL, Ann. Mus. Genov. xxxi.
- Icius formosus*, p. 76, pl. v, fig. 31, *mæstus*, p. 77, pl. v, fig. 33, Cayuga Lake, BANKS, P. Ac. Philad. 1892; *I. discatus*, Ceylon, p. 301; KARSCH, B. E. Z. xxxvi : n. spp.
- Iola*, n. g., p. 75, for *I. cowani*, Madagascar, p. 75, pl. vi, fig. 3, PECKHAM, Nat. Hist. Soc. Wisconsin, ii, n. sp.
- Janigera melanocephala*, C. Koch, Sumatra, pp. 224-239; THORELL, Ann. Mus. Genov. xxxi.
- Keyserlingella*, n. g., p. 69, for *K. perdita*, New Grenada, p. 70, pl. v, fig. 7, *cara*, Guatemala, p. 71, pl. v, fig. 8, n. spp.; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Leptorchestes chrysopogon*, Simon, Europe, p. 48, pl. iv, fig. 5, *mutilloides*, Lucas, Algiers, p. 49, *berolinensis*, C. Koch, Europe, p. 50; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.

- L. georgius*, Madagascar, p. 52, pl. iv, fig. 6, PECKHAM, Nat. Hist. Soc. Wisconsin, ii, n. sp.
- Mœvia vittata*, C. Koch, Penang, pp. 335-338; THORELL, Ann. Mus. Genov. xxxi.
- M. glaucochira*, Sumatra, pp. 325-328, *gemmans*, Sumatra, pp. 329-332, *marzii*, Java, pp. 332-335, *cypria*, Java, pp. 339-341, *laticlavata*, Sumatra, pp. 341-343, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Marpissa armifera*, Albany (N. Z.), p. 248, *nemoralis*, Stratford, p. 250, URQUHART, Tr. N. Z. Inst. xxiv; *M. grantii*, Madeira, p. 217, pl. xiv, figg. 2 & 3, WARBURTON, Ann. N. H. (6) x : n. spp.
- Marptusa nannodes*, pp. 283-288, *hians*, pp. 289-292, *decorata*, pp. 292-295, *demissa*, pp. 295-300, *oppressa*, pp. 300-302, Sumatra, *formosissima*, Borneo, pp. 303-306, THORELL, Ann. Mus. Genov. xxxi; *M. marina*, Otago, pp. 253-255, pl. xix, fig. 1, GOYEN, Tr. N. Z. Inst. xxiv : n. spp.
- M. rupicola*, Hentz, Cayuga Lake, p. 79, pl. iv, fig. 49; BANKS, P. Ac. Philad. 1892.
- Marengo*, n. g., p. 66, for *M. crassipes*, Ceylon, p. 66, pl. v, fig. 4; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Martella*, n. g., p. 45, for *M. pottsii*, n. sp., Guatemala, p. 45, pl. iv, fig. 2; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- M. maria*, Chapoda (Brazil), p. 46, pl. iv, fig. 3, *opica*, Bahia, p. 47, pl. iv, fig. 4, PECKHAM, Nat. Hist. Soc. Wisconsin, ii, n. spp.
- Nicylla*, n. g., p. 449, for *N. sundevallii*, n. sp., Sumatra, pp. 450-456; THORELL, Ann. Mus. Genov. xxxi.
- Orcevia*, n. g., pp. 360 & 361, for *O. keyserlingii*, pp. 361-365, *eucola*, pp. 365-369, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Paradamætas formicina*, Peckh., Guatemala, p. 74, pl. vi, fig. 2; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Phidippus minutus*, Cayuga Lake, p. 74, pl. v, fig. 27, BANKS, P. Ac. Philad. 1892, n. sp.
- Plexippus gausapatus*, Sumatra, pp. 370-374, THORELL, Ann. Mus. Genov. xxxi; *P. cumulatus*, Ceylon, p. 301, pl. xii, fig. 28, KARSCH, B. E. Z. xxxvi; *P. sylvarius*, Stratford (N. Z.), p. 252, URQUHART, Tr. N. Z. Inst. xxiv : n. spp.
- Polichus*, n. g. for *Gelotia bimaculata*, if generically distinct from *Gelotia frenata*, p. 351; THORELL, Ann. Mus. Genov. xxxi.
- Salticus formicarius*, De G., Europe, p. 16, pl. i, fig. 1, *ichneumon*, Simon, Zanzibar, p. 17, pl. i, fig. 7, *ephippiatus*, Hentz, Eastern United States, p. 18, fig. 2, *plataleoides*, Cambr., Ceylon, p. 33, pl. iii, fig. 1; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- S. formosus*, pp. 230-233, *pecterosus*, with n. var. *sternodis*, Sumatra, pp. 233-239, *alticeps*, pp. 239-242, *leptognathus*, Java, pp. 242-246, THORELL, Ann. Mus. Genov. xxxi; *modestus*, Andaman Is., p. 235, THORELL, Ann. N. H. (6) ix; *S. centralis*, Central America, p. 19, pl. i, fig. 6, *armatus*, Lima, p. 20, pl. vii, fig. 6, *desertus*, Algiers, p. 21, pl. ii, fig. 6, *tristis*, Simon, Arabia, p. 22, pl. iii, fig. 2, *simplex*,

- Madagascar, p. 23, pl. i, fig. 4, *augustus*, Madagascar, p. 24, pl. i, fig. 5, *electricus*, Madagascar, p. 25, pl. i, fig. 3, *gracilis*, Madagascar, p. 26, pl. ii, fig. 1, *robustus*, Burma, p. 27, pl. ii, fig. 2, *nemorensis*, Burma, p. 28, pl. ii, fig. 3, *dubius*, p. 29, pl. ii, fig. 4, *niger*, p. 30, pl. ii, fig. 7, *edentulus*, p. 31, pl. ii, fig. 5, *bellicosus*, p. 32, pl. ii, fig. 11, Manilla, *providens*, p. 34, pl. iii, fig. 3, *imbellis*, p. 36, pl. ii, fig. 10, *spissus*, p. 37, pl. ii, fig. 8, Ceylon, PECKHAM, Nat. Hist. Soc. Wisconsin, ii, n. spp.
- Sarinda*, n. g., p. 40, for *S. nigra*, Chapoda, Brazil, p. 40, pl. iii, fig. 5, *lata*, Rio Janeiro, p. 41, pl. iii, fig. 6, n. spp., PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Semora*, n. g., p. 68, for *S. napæa*, n. sp., Rio Janeiro, p. 69, pl. v, fig. 6 ; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Simonella americana*, Peckh., Guatemala, p. 81, pl. vii, fig. 3, *myrmeciformis*, Tacz., Brazil, p. 81, pl. vii, fig. 4, *bicolor*, n. sp., Venezuela, p. 83, pl. vii, fig. 5 ; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Synageles dalmatensis*, Keys., Europe, p. 60, *venator*, Luc., Algiers, p. 61, pl. v, fig. 1, *albotrimaculatus*, Luc., Algiers, p. 62, *scorpionia*, Hentz, New York, p. 6, pl. v, fig. 1, *picata*, Hentz, United States, p. 64, pl. v, fig. 2, *americana*, n. sp., E. United States, p. 65, pl. v, fig. 1 ; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Synemosyna capito*, pp. 215-217, *debilis*, pp. 218 & 219, n. spp., Java, THORELL, Ann. Mus. Genov. xxxi. *S. formica*, Hentz, United States, p. 77, pl. vi, fig. 4, *hantzii*, p. 78, pl. vii, fig. 2, *lauretta*, p. 79, pl. vii, fig. 1, Chapoda, n. spp. ; PECKHAM, Nat. Hist. Soc. Wisconsin, ii.
- Tapinattus*, n. g. for *melanognathus*, Luc., p. 306 ; THORELL, Ann. Mus. Genov. xxxi.
- Toxeus mandibularis*, n. sp. ?, Java, pp. 220-224 ; THORELL, Ann. Mus. Genov. xxxi.
- Viciria hasseltii*, Thor., Celebes, pp. 389-392, *albo-limbata*, Sim., Sumatra, *terebrifera*, n. sp., Sumatra, pp. 397-401 ; THORELL, Ann. Mus. Genov. xxxi.
- Zuniga*, n. g., p. 42, for *Z. magna*, Santarem, p. 43, pl. iv, fig. 1, *severa*, Caraccas, p. 44, pl. iii, fig. 7, n. spp., PECKHAM, Nat. Hist. Soc. Wisconsin, ii.

## CTENIDÆ.

- Acanthoctenus dimidiatus*, Sumatra, pp. 142-145, *lætus*, Sarawak, pp. 146-148, THORELL, Ann. Mus. Genov. xxxi : n. spp. According to SIMON, Hist. Nat. des Araignées, p. 229, this genus is the sole representative of the subfamily *Acanthacteninae* of the family *Zoropsidæ*.
- Ctenus valvularis*, Van Hass., Sumatra, pp. 135-139, *pulvinatus*, n. sp., Sarawak, pp. 139-142 ; THORELL, Ann. Mus. Genov. xxxi.
- C.* (syn. *Phoneutria*, *Microctenus*, *Anabita*, *Isoctenus*) *nigriventer*, Rio Grande, p. 144, pl. iv, fig. 98 ; *vehemens*, Espirito Santo, p. 145,

fig. 99, *velox*, Neu Freiburg, p. 147, fig. 100, *brevipes*, p. 148, fig. 101, *minusculus*, p. 149, fig. 102, *longipes*, p. 150, fig. 103, *teniatus*, p. 151, fig. 104, Rio Grande, *griseus*, Taquara, p. 152, fig. 195, *medius*, Rio Grande, p. 153, fig. 106, KEYSERLING, Spinnen Amerikas, 1891, n. spp. According to KEYSERLING *Otenus* is placed in the subfamily *Oteninæ* of the family *Drassidæ*.

*Nydia*, n. g., p. 130, for *N. punctata*, n. sp., Sumatra, p. 131; THORELL, Ann. Mus. Genov. xxxi.

### DICTYNIDÆ (or AMAUROBIIDÆ).

*Amaurobius occidentalis*, n. sp., Portugal, p. exciv, SIMON, Bull. Soc. Ent. Fr. 1892; *A. jheringii*, n. sp., Rio Grande, p. 154, pl. iv, fig. 107, KEYSERLING, Spinnen Amerikas. *A. similis*, Blk., and *fenestralis*, Ström., figured and compared, p. 389, pls. xxi, figg. 10 & 11; F. CAMBRIDGE, Ann. N. H. (6) x.

*Atelolathys*, n. g. for *A. varia*, n. sp., Ceylon, p. 243; SIMON, Hist. Nat. des Araignées.

*Auximus*, n. g. for *Amaurobius dentichelis*, Sim., p. 239; SIMON, Hist. Nat. des Araignées.

*Calleva*, n. g. for *C. paupercula*, n. sp., Argentine, p. 239; SIMON, Hist. Nat. des Araignées.

*Dictyna foxii*, Marx, p. 28, pl. i, fig. 78; BANKS, P. Ac. Philad. 1892.

*D. maxima*, p. 28, pl. i, fig. 79, & pl. iv, fig. 79, *decorata*, p. 28, pl. i, fig. 81, & pl. iv, fig. 81, *dubia*, p. 29, pl. i, fig. 82, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp. *D. philoteichus*, McCook, is synonymous with *D. civica*, Luc., p. 235; SIMON, Hist. Nat. des Araignées.

*Neophanes*, Marx, p. 29, *pallidus*, Marx, Cayuga Lake, p. 29, pl. iii, fig. 86; BANKS, P. Ac. Philad. According to SIMON, Hist. Nat. des Araignées, p. 243, this genus is a synonym of *Scotolathys* of Simon.

*Protadia*, n. g. for *Dictyna patula*, Sim., p. 239; SIMON, Hist. Nat. des Araignées.

*Titanæca sequeraï*, Portugal, p. cxcv, SIMON, Bull. Soc. Ent. Fr. 1892; *T. luteipes*, Rio Grande, p. 156, pl. iv, fig. 108, KEYSERLING, Spinnen Amerikas: n. spp. SIMON, Hist. Nat. des Araignées, p. 237, unites this genus with *Amaurobius*.

### DRASSIDÆ.

Subfam. DRASSINI (? all the genera).

*Agræca ornata*, Cayuga Lake, p. 23, pl. i, fig. 68, BANKS, P. Ac. Philad. 1892, n. sp.

*Chiracanthium subflavum*, Bleck., syn. *edentulum*, L. Koch, *keyserlingii*, Beck., Brazil, p. 37, pl. i, fig. 15; KEYSERLING, Spinnen Amerikas.

*C. montanum*, Neu Freiburg, p. 38, fig. 16, *brevipes*, Serra Vermella, p. 39, fig. 16a, KEYSERLING, Spinnen Amerikas, n. spp.

- Clubiona tibialis*, Em., p. 20, pl. i, fig. 62, *abbotti*, Koch, p. 21, fig. 65 ; BANKS, P. Ac. Philad. 1892.
- C. pygmaea*, p. 21, fig. 64, *lenta*, p. 21, fig. 66, Cayuga Lake, BANKS, P. Ac. Philad. 1892 ; *C. chevronia*, Canterbury (N. Z.), p. 231, *viridicomma*, Mt. Cook, p. 233, URQUHART, Tr. N. Z. Inst. xxiv : n. spp.
- Drassus humilis*, n. sp., Cayuga Lake, p. 20, pl. i, fig. 60, BANKS, P. Ac. Philad. 1892 ; *D. brasiliensis*, Rio Grande, p. 34, pl. i, fig. 13, *agelas-tus*, Taquara, p. 35, fig. 14, KEYSERLING, Spinnen Amerikas : n. spp.
- Echemus pulcher*, Rio Grande, p. 31, pl. i, fig. 10, *major*, Rio Grande, p. 32, fig. 11, *medius*, Fugenda Sergio Potta de Castro, p. 33, fig. 12, KEYSERLING, Spinnen Amerikas, n. spp.
- Ellica*, n. g., p. 29, for *E. modesta*, n. sp., Blumenau, p. 30, pl. i, fig. 9 ; KEYSERLING, Spinnen Amerikas.
- Goldia*, n. g., p. 45, for *G. obscura*, n. sp., Espirito Santo, p. 45, pl. i, fig. 20 ; KEYSERLING, Spinnen Amerikas.
- Gnaphosa humilis*, Cayuga Lake, p. 19, pl. i, fig. 59, BANKS, P. Ac. Philad. 1892 ; *G. barroisi*, Syria, p. 81, SIMON, Rev. Biol. v : n. spp.
- Gytha*, n. g., p. 27, for *G. obscura*, n. sp., Rio Grande, p. 28, pl. i, fig. 8 ; KEYSERLING, Spinnen Amerikas.
- Hypsinothus vitiosus*, Rio Grande, p. 51, pl. ii, fig. 24, *parvus*, Serra Vermella, p. 52, pl. ii, fig. 25, *alticeps*, Espirito Santo, p. 53, fig. 26, *flavipes*, Rio Minas, p. 54, fig. 27, *botucatensis*, Sao Paulo, p. 55, fig. 28, *gracilis*, Rio Grande, p. 56, fig. 29, *nitens*, Neu Freiburg, &c., p. 57, fig. 30, KEYSERLING, Spinnen Amerikas.
- Leptodrassus seriatus*, Ceylon, p. 294, pl. xi, fig. 16, KARSCH, B. E. Z. xxxvi, n. sp.
- Micaria formicoides*, Cayuga Lake, p. 14, pl. i, fig. 51, BANKS, P. Ac. Philad. 1892, n. sp.
- Odo pulcher*, Palmeiras, p. 42, pl. i, fig. 18, *similis*, Corcovado, KEYSERLING, Spinnen Amerikas, n. spp.
- Onychocryptus*, n. g., p. 294, for *O. mutillarius*, n. sp., Ceylon, p. 295, pl. xi, fig. 17 ; KARSCH, B. E. Z. xxxvi.
- Phrurolithus minutus*, p. 22, pl. i, fig. 67, *palustris*, p. 23, fig. 70, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Prothesima rufula*, p. 17, pl. i, fig. 55, *frigida*, p. 17, fig. 56, *immacula*, p. 18, fig. 58, *blanda*, p. 18, fig. 57, *minima*, p. 19, fig. 69, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Radulphius*, n. g., for *R. laticeps*, Serra Vermella, p. 47, pl. i, fig. 21, *bicolor*, Neu Freiburg, p. 48, fig. 22, KEYSERLING, Spinnen Amerikas, n. spp.
- Stasina nalandica*, Nalanda (Ceylon), p. 293, pl. xi, fig. 15, KARSCH, B. E. Z. xxxvi, n. sp.
- Teminius brasiliensis*, Rio Grande, p. 40, pl. i, fig. 17, KEYSERLING, Spinnen Amerikas, n. sp.
- Thargalia agilis*, p. 15, pl. i, fig. 52, *perplexa*, p. 15, fig. 53, *fullax*, p. 16, fig. 54, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.

*Trachelas flavipes*, Rio Grande, p. 59, pl. ii, fig. 31a, *foraminosus*, Rio Grande, p. 60, fig. 32, *gracilis*, Blumenau, p. 61, fig. 33, *rugosus*, Serra Vermella, &c., p. 62, fig. 34, *robustus*, Neu Freiburg, p. 64, fig. 35, *vitiosus*, Serra Vermella, p. 65, fig. 36, KEYSERLING, Spinnen Amerikas, n. spp.

## Subfam. ANYPHÆNINI.

- Abuzaida*, n. g., p. 132, for *A. striata*, n. sp., Neu Freiburg, p. 133, pl. iv, fig. 91; KEYSERLING, Spinnen Amerikas.
- Anypheana censoria*, Serra Vermella, p. 84, pl. ii, fig. 48, *procera*, p. 86, fig. 49, *affabilis*, Brazil, p. 87, fig. 50, *lenis*, Neu Freiburg, p. 88, fig. 51, *pygmæa*, p. 90, fig. 52, *longipes*, p. 91, fig. 53, *virgata*, p. 92, fig. 54, Brazil, *cita*, Palmeiras, p. 94, fig. 55, *violens*, Serra Vermella, p. 95, fig. 56, *subrubra*, Blumenau, p. 97, fig. 57, *helvola*, Rio Grande, p. 98, fig. 58, *rubro-maculata*, p. 99, fig. 59, *claro-vittata*, Neu Freiburg, p. 100, fig. 60, *unicolor*, p. 101, fig. 61, *striolata*, p. 102, fig. 62, *robusta*, p. 103, fig. 63, *grisea*, p. 104, fig. 64, *teniata*, p. 105, fig. 65, *fortis*, Fazenda Calvario, p. 106, *formosa*, Corcovado, p. 107, fig. 67, *imbecilla*, Corcovado, p. 108, fig. 68, *angusticeps*, p. 109, fig. 69, *suspiciosa*, p. 110, fig. 70, *glabra*, p. 111, fig. 71, Serra Vermella, *tensa*, p. 112, fig. 72, *rubella*, p. 113, fig. 73, Neu Freiburg, *parvula*, Serra Vermella, p. 114, fig. 74, *tensipes*, Neu Freiburg, p. 115, fig. 75, *frenata*, p. 116, fig. 76, *punctata*, p. 117, fig. 77, *opertanea*, p. 118, p. 78, *gentilis*, p. 119, fig. 79, *concolor*, p. 120, fig. 80, Neu Freiburg, *recentissima*, Blumenau, p. 121, fig. 81, *tenuipes*, Serra Vermella, p. 122, fig. 82, *pellucida*, Neu Freiburg, p. 122, fig. 83, *variabilis*, p. 123, fig. 84, *diversicolor*, p. 124, fig. 85, Neu Freiburg, KEYSERLING, Spinnen Amerikas, n. spp.
- Arachosia freiburgensis*, Neu Freiburg, p. 126, pl. iv, fig. 86, *honesta*, Rio Grande, p. 127, fig. 87, KEYSERLING, Spinnen Amerikas, n. spp.
- Aysa*, n. g., for *A. prospera*, Rio Grande, p. 129, pl. iv, fig. 88, *gracilipes*, p. 130, fig. 89, *fulviceps*, p. 131, fig. 90, Rio Grande, KEYSERLING, Spinnen Amerikas, n. spp.
- Gayenna x-signata*, p. 138, pl. iv, fig. 64, *marginata*, p. 139, fig. 95, *fusco-teniata*, p. 140, fig. 96, Rio Grande, KEYSERLING, Spinnen Amerikas, n. spp.
- Samuza*, n. g., p. 134, for *S. præsignis*, p. 135, pl. iv, fig. 22, *minuta*, p. 136, fig. 93, Rio Grande, KEYSERLING, Spinnen Amerikas, n. spp.

## Subfam. CORINNINÆ.

*Castianeira* (syn. *Corinna*), *valida*, Espirito Santo, p. 68, pl. ii, fig. 37, *varia*, Blumenau, p. 69, fig. 38, *pyriformis*, Neu Freiburg, p. 70, fig. 39, *obscura*, Espirito Santo, p. 71, fig. 40, *vittata*, Blumenau, p. 73, fig. 41, *maculata*, Neu Freiburg, p. 74, fig. 42, *brevis*, Corcovado, p. 75, fig. 43, KEYSERLING, Spinnen Amerikas, n. spp.

*Tylophora onerosa*, Palmeiras, p. 76, pl. ii, fig. 44, KEYSERLING, Spinnen Amerikas, n. sp.

#### Subfam. MYRMECHINÆ.

*Myrmecia vertebrata*, W., and *nigra*, Perty, Brazil, pp. 78-80, pl. ii, figg. 45 & 46; KEYSERLING, Spinnen Amerikas.

*M. obscura*, Rio Janeiro, p. 81, pl. ii, fig. 47, KEYSERLING, Spinnen Amerikas, n. sp.

#### DYSDERIDÆ.

*Nops meridionalis*, n. sp., Taquara, p. 24; KEYSERLING, Spinnen Amerikas.

*Segestria suterii*, Canterbury, p. 230, URQUHART, Tr. N. Z. Inst. xxiv, n. sp.

#### EPEIRIDÆ (ARGIOPIDÆ or EUETRIIDÆ).

*Argiope multi-fasciata*, Singapore, p. 226, THORELL, Bull. Soc. Ent. Ital. xxiv; *A. plagiata*, Minikoy, p. 279, pl. x, fig. 5, *trivittata*, Ceylon, p. 280, fig. 6, KARSCH, B. E. Z. xxxvi : n. spp.

*Argyropeira fibulata*, Singapore, p. 224, THORELL, Bull. Soc. Ent. Ital. xxiv, n. sp.

*Bunocrania* ? *picta*, Singapore, p. 251, THORELL, Bull. Soc. Ent. Ital. xxiv, n. sp.

*Epeira beccarii*, Thor., described and figured, with snare, pls. v & va; WORKMAN, Malaysian Spiders.

*E. anaspasta*, p. 234, *perpolita*, p. 237, Singapore, THORELL, Bull. Soc. Ent. Ital. xxiv; *E. obtusata*, Ceylon, p. 283, pl. x, fig. 7, KARSCH, B. E. Z. xxxvi; *E. invisibilis*, Dunedin, p. 239, *sublutia*, Dunedin, p. 241, *simulata*, Stewart I., p. 242, *ventriosa*, Raglan, p. 243, *lucisca*, Hastwell, p. 245, URQUHART, Tr. N. Z. Inst. xxiv : n. spp.

*E. (Cyclosa) oatesii*, Andaman Is., p. 228, THORELL, Ann. N. H. (6) ix; *E. confragosa*, p. 239, *pellax*, p. 243, *micula*, p. 245, Singapore.

*E. (Cyrtophora) eczematica*, Singapore, p. 231, THORELL, Bull. Soc. Ent. Ital. xxiv : n. spp.

*Drexelia*, n. g., p. 127, for *Epeira directa*, Hentz., syn. *rubella*, Hentz., *tetragnathoides*, Cambr., *deludens*, Marx, p. 128; MCCOOK, P. Ac. Philad. 1892.

*Gastracantha doriae*, and *brevispina*, figured on pls. vii & viii; WORKMAN, Malaysian Spiders.

*Meta adpersata*, Ceylon, p. 284, pl. x, fig. 8; KARSCH, B. E. Z. xxxvi, n. sp.

*Milonia obtusa*, Singapore, p. 248, THORELL, Bull. Soc. Ent. Ital. xxiv, n. sp.

- Nephila transvaalica*, Pretoria, p. 180, pl. v, fig. 4, Pocock, in Distant's Naturalist in the Transvaal, n. sp.
- Poltys apiculatus*, Singapore, p. 228, Thorell, Bull. Soc. Ent. Ital. xxiv, n. sp.
- Tetragnatha pallida*, Cayuga Lake, p. 51, pl. v, fig. 88, Banks, P. Ac. Philad. 1892; *T. geniculata*, Ceylon, p. 286, *armata*, Passelawa, p. 287, *planata*, Jaffna, p. 288, *determinata*, Minikoy, p. 288, *foveata*, Jaffna, p. 289, Karsch, B. E. Z. xxxvi : n. spp.
- Zilla x-notata*, Cl., and *atrica*, C. Koch, compared and figured, p. 395, pl. xx, figg. 3 & xxi, and 8 & 9; F. Cambridge, Ann. N. H. (6) x.

## ERESIDÆ, FILISTATIDÆ and HYPOCHILIDÆ.

- Ectatostica*, n. g. for *Hypochilus davidi*, Sim.; Simon, Hist. Nat. des Araignées.
- Filistata garciai*, Grotto de San Mateo (Philippines), p. 37, Simon, Ann. Soc. Ent. Fr. xli, n. sp.
- Stegodyphus sarasinorum*, Peradenia, p. 275, Karsch, B. E. Z. xxxvi, n. sp.

## LEPTONETIDÆ.

- Synopsis of the genera, p. 39; Simon, Ann. Soc. Ent. Fr. lxi.
- Psilodermes*, n. g., p. 40, for *egeria*, n. sp., Grotto of Calapnitan, p. 40, Simon, t. c.
- Theoclia microphthalma*, n. sp., Grotto of Antipolo (Philippines), p. 40; Simon, Ann. Soc. Ent. Fr. lxi.

## LYCOSIDÆ.

- Dolomedes lepidus*, Sumatra, pp. 149-151, Thorell, Ann. Mus. Genov. xxxi, n. sp.
- Diapontia uruguayensis*, Keys., Rio Grande, p. 257, pl. x, fig. 193; Keyserling, Spinnen Amerikas.
- Lycosa pusiola*, Sumatra and Sarawak, pp. 157-161, *sumatrana*, Sumatra, pp. 161-166, *pinangensis*, Pinang, pp. 166-169, *vagula*, pp. 169-173, *rabulana*, pp. 173-176, *ipnochæra*, pp. 176-178, Sumatra, Thorell, Ann. Mus. Genov. xxxi; *L. rara*, Rio Grande, p. 264, pl. x, fig. 199, Keyserling, Spinnen Amerikas; *L. similis*, pl. ii, fig. 30, *rufiventris*, pl. iii, fig. 35, *humilis*, fig. 36, *crudelis*, fig. 37, *immaculata*, pl. v, fig. 38, *exitiosa*, pl. 1, fig. 39, *oblonga*, pl. iii, fig. 40, pp. 64-68, Cayuga Lake, Banks, P. Ac. Philad. 1892; *L. maura*, Mt. Cook, p. 246, Urquhart, Tr. N. Z. Inst. xxiv : n. spp.
- Lycosella*, n. g., pp. 178 & 179, for *L. tenera*, with varr. *bisulcata*, pp. 179-183, *minuta*, pp. 183-185, n. spp., Sumatra, Thorell, Ann. Mus. Genov. xxxi.

- Passiena*, n. g., p. 186, for *P. spinicrus*, n. sp., Pinang, pp. 186–190 ; THORELL, Ann. Mus. Genov. xxxi.
- Pardosa annulata*, pl. i, fig. 41, *venusta*, fig. 42, *gracilis*, figg. 43 & 50, *mæsta*, pl. iii, fig. 44, *obsoleta*, fig. 45, pp. 68–71, Cayuga Lake ; BANKS, P. Ac. Philad. 1892, n. spp.
- Pirata montanoides*, pl. i, fig. 46, *agilis*, fig. 47, *exigua*, fig. 48, pp. 71 & 72, Cayuga Lake, BANKS, P. Ac. Philad. 1892 ; *P. velox*, Rio Grande, p. 265, fig. 200, KEYSERLING, Spinnen Amerikas : n. spp.
- Tarantula fragilis*, n. sp., Sumatra, pp. 154–157, THORELL, Ann. Mus. Genov. xxxi ; *thorellii*, Keys., syn. *sternalis*, Bert., Rio Grande, p. 259, pl. x, fig. 195 ; *nervosa*, Rio Grande, p. 260, fig. 196, *venefica*, Rio Grande, p. 261, fig. 197a, *auricoma*, Taquara, p. 262, fig. 198, n. spp., KEYSERLING, Spinnen Amerikas.
- Tetragonophthalma obscurum*, Taquara, p. 256, pl. x, fig. 192, KEYSERLING, Spinnen Amerikas, n. sp.
- Trochosa inops*, Sumatra, pp. 151–154, THORELL, Ann. Mus. Genov. xxxi ; *pictipes*, Rio Grande, p. 266, pl. x, fig. 201, KEYSERLING, Spinnen Amerikas, n. spp.

## ÆCOBIIDÆ.

- Omanus maculatus*, n. sp., Blumenau, &c., p. 160, pl. v, fig. iii ; KEYSERLING, Spinnen Amerikas. According to SIMON, Hist. Nat. des Araignées, p. 247, this genus is a synonym of *Æcobius*.

## OXYOPIDÆ.

- Oxyopes ceylonicus*, n. sp., Ceylon, p. 290, pl. xii, fig. 22, KARSCH, B. E. Z. xxxvi ; *O. lineatipes* and *gemellus*, Pinang, figured by WORKMAN, Malaysian Spiders, *lineatipes*, C. Koch, Sumatra, pp. 190–194 ; *O. javanus*, Java, pp. 195–198, *longinguus*, ? Indo-Malaysia, pp. 198–200, *annulipes*, Sumatra, pp. 200–202, *providens*, Sumatra, pp. 202–204, *setipes*, Sarawak, pp. 204–206, *obtusus*, Sumatra, pp. 207–209, *fronto*, Sumatra, pp. 209–211, *latifrons*, Sumatra, pp. 211–213, n. spp., THORELL, Ann. Mus. Genov. xxxvi ; *O. constrictus*, Rio Grande, p. 268, pl. x, fig. 202, *rubrosignatus*, Rio Grande, p. 270, pl. x, fig. 203, n. spp., KEYSERLING, Spinnen Amerikas.

## PHILODROMIDÆ.

- Philodromus signifer*, pl. iii, fig. 20, *gracilis*, fig. 21, *unicolor*, fig. 22, *ornatus*, fig. 24, *placidus*, fig. 25 ; BANKS, P. Ac. Philad. 1892.
- P. minutus*, pl. v, fig. 85, *minusculus*, pl. ii, fig. 39, *exilis*, pl. ii, fig. 40, pp. 59–63, Cayuga Lake, BANKS, P. Ac. Philad. 1892 ; *P. meridionalis*, Rio Grande, p. 251, pl. x, fig. 190, KEYSERLING, Spinnen Amerikas : n. spp.

*Thanatus taquaræ*, Taquara, p. 252, pl. x, fig. 191, KEYSERLING, Spinnen Amerikas, n. sp.

## PHOLCIDÆ.

*Pholcus bicornutus*, in Caves, Luzon, p. 41, pl. ii, figg. 3 & 4, SIMON, Ann. Soc. Ent. Fr. lxi; *imbecillus*, Serra Vermella, p. 170, pl. v, fig. 115, *cæruleus*, p. 171, fig. 116, *luteus*, p. 171, fig. 117, *togatus*, p. 172, fig. 118, *cyaneo-maculatus*, p. 173, fig. 119, Brazil, *altiventer*, Serra Vermella, p. 175, fig. 120, *cyaneo-tæniatus*, Brazil, p. 176, fig. 121, KEYSERLING, Spinnen Amerikas : n. spp.

*Spermophora estebani*, in Cave, Luzon, p. 42, SIMON, Ann. Soc. Ent. Fr. lxi; *S. maculata*, Blumenau, p. 177, pl. vi, fig. 122, *unicolor*, Serra Vermella, p. 178, fig. 123, *bicornis*, Sao Paulo, p. 179, fig. 124, KEYSERLING, Spinnen Amerikas : n. spp.

*Calapnita*, n. g. for *C. vermiformis*, n. sp., in Cave, Luzon, p. 42; SIMON, Ann. Soc. Ent. Fr. lxi.

## PALPIMANIDÆ and PRODIDOMIDÆ.

*Jheringia*, n. g. *Palpimanidæ*, p. 25, for *J. lutea*, n. sp., Rio Grande, p. 26; KEYSERLING, Spinnen Amerikas.

*Storena annulipes*, Singapore, p. 209, THORELL, Bull. Soc. Ent. Ital. xxiv, n. sp.

## SCYTODIDÆ.

*Scytodes annulata*, Serra Vermella, p. 166, pl. v, fig. 113; KEYSERLING, Spinnen Amerikas, n. sp.

*Pandeus*, n. g., p. 167, for *P. cæruleus*, n. sp., Blumenau, p. 168, pl. v, fig. 114; KEYSERLING, Spinnen Amerikas.

## SPARASSIDÆ.

*Angæus rhombipes*, Sumatra, p. 67; THORELL, Ann. Mus. Genov. xxxi, n. sp.

*Dolothymus*, n. g., pp. 62 & 63, for *D. pallidus*, n. sp., Sumatra, pp. 64-67; THORELL, Ann. Mus. Genov. xxxi.

*Heteropoda boiei*, Dol., syn. *flavimana*, Simon, Sumatra, Java, pp. 15 & 16; *H. thoracica*, C. Koch, Padang, &c., pp. 24-26; THORELL, Ann. Mus. Genov. xxxi.

*H. imbecilla*, Padang, pp. 16-19, *leptoscelis*, Sumatra, pp. 19-22, *sumatrana* (with n. var. *montana*), pp. 26-31, *signata*, pp. 32-34, Sumatra, *obtusa*, Sarawak, pp. 34-37, THORELL, Ann. Mus. Genov. xxxi; *H.*

- umbrata*, pl. xi, fig. 11, *eluta*, fig. 12, p. 291, *subtilis*, p. 292, fig. 13, Ceylon, KARSCH, B. E. Z. xxxvi : n. spp.
- Holconia beccarii*, Sumatra, pp. 46-49, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Libania*, n. g., pp. 49-51, for *L. scabricula*, n. sp., with var. *sulcata*, Sumatra, pp. 51-56 ; *lævis*, pp. 56 & 57, *annulata*, pp. 58-60, *armilata*, pp. 60-62, Sumatra, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Palystes incanus*, Sarawak, pp. 37-40, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Sarotes impudicus*, Andaman Is., p. 233, THORELL, Ann. N. H. (6) ix ; *S. ferox*, loc. ?, p. 40, THORELL, Ann. Mus. Genov. xxxvi : n. spp.
- Thelcticopis orichalcea*, Sim., Sarawak, pp. 44-46 ; THORELL, Ann. Mus. Genov. xxxvi.
- Urgulania*, n. g., p. 11, for *U. borneensis*, n. sp., Sarawak, p. 12, THORELL, Ann. Mus. Genov. xxxvi.
- Zatapina*, n. g. for *Delena plumipes*, Dol., p. 290 (referred to the family *Clubionidæ*) ; KARSCH, B. E. Z. xxxvi.

## STEPHANOPIDÆ.

- Stephanop[ol]idæ*. New family based upon *Stephanopis*, and allied to the *Thomisidæ* and *Sparassidæ* (*Heteropodidæ*), p. 5 ; THORELL, Ann. Mus. Genov. xxxi.
- Regillus*, Cambr., remarks on, p. 6 ; *R. cinerascens*, Dol., Ajur Mantjur, pp. 6-11 ; THORELL, Ann. Mus. Genov. xxxi.

## THERAPHASIDÆ or AVICULARIIDÆ.

- Acanthoscurria minor*, Auss., Guyana, p. 281 ; SIMON, Ann. Soc. Ent. Fr. lxi.
- A. maga*, S. America, p. 280, *musculosa*, p. 281, *insubtilis*, Bolivia, p. 282, *ferina*, Amazons, p. 282, SIMON, Ann. Soc. Ent. Fr. lxi, n. spp.
- Accola cavicola*, Grotto of San Mateo, p. 35, *cæca*, Grotto d'Antipolo, p. 35, SIMON, Ann. Soc. Ent. Fr. lxi, n. spp.
- Actinozia*, n. g. for *A. versicolor*, n. sp., California, p. 318 ; SIMON, Act. Soc. L. Bord. xlv.
- Agathostola*, n. g. for *A. strabo*, n. sp., Columbia, p. 163 ; SIMON, Hist. Nat. des Araignées.
- Apostichus*, n. g. for *A. atomarius*, p. 317, n. sp. ; SIMON, Act. Soc. L. Bord. xlv.
- A. clathratus*, p. 318, California, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Arbanitis huttonii*, Cambr., Dunedin, p. 255, pl. xix, figg. 2 & 3 ; GOYEN, Tr. N. Z. Inst. xxiv.
- Bothriocyrtum*, n. g., p. 314, for *Cteniza californica*, Cambr., Texas, California, &c., p. 315, and *B. fabrile*, n. sp., Mexico, p. 327 ; SIMON, Act. Soc. L. Bord. xlv.

- Brachybothrium* (syn. *Nidivalvata*, Atk.) *robustum*, Virginia, &c., p. 311, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Brachythele longitarsis*, Sim., Texas, &c., p. 319 ; SIMON, Act. Soc. L. Bord. xlv.
- Brachypelma*, n. g. for *B. emilia*, White, Mexico, p. 338 ; SIMON, Act. Soc. L. Bord. xlv.
- Chilobrachys*, n. g., p. 270, for *C. nitelinus*, n. sp., Ceylon, p. 271, pl. x, fig. 2 ; KARSCH, B. E. Z. xxxvi.
- Cratorrhagus*, n. g. for *C. cervinus*, n. sp., Mexico, p. 330 ; SIMON, Act. Soc. L. Bord. xlv.
- Crypsidromus bolivianus*, Bolivia, p. 278, SIMON, Ann. Soc. Ent. Fr. lxi ; *C. perfidus*, p. 14, *funestus*, p. 15, Taquara, KEYSERLING, Spinnen Amerikas : n. spp.
- Cyclocosmia theveneti*, California, p. 313, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Cyclosternum obscurum*, Mexico, p. 330, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Cyrtauenias zebra*, Zululand, p. 272, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Cyrtosternum meridionale*, Taquara, p. 6, KEYSERLING, Spinnen Amerikas, n. sp.
- Diplothele halyi*, Ceylon, p. 123, SIMON, Hist. Nat. des Araignées, n. sp.
- Encyocrates*, n. g., p. 279, for *E. raffrayi*, Madagascar, p. 280 ; SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Ephebopus*, n. g. for *Mygale murinus*, Walck., p. 155 ; SIMON, Hist. Nat. des Araignées.
- Eudiplura*, n. g. for *Diplura rogenhoferi*, Auss., p. 179 ; SIMON, Hist. Nat. des Araignées.
- Eurypelma steindachneri*, Auss., Texas ; *hentzi*, Gir., syn. *mordax*, Auss., Texas, &c., p. 322 ; *vagans*, Auss., syn. *duponti*, Becker, Mexico, &c. ; SIMON, Act. Soc. L. Bord. xlv.
- E. jheringii*, p. 19, pl. i, fig. 4, *vitiosa*, p. 21, pl. i, fig. 5, Taquara, KEYSERLING, Spinnen Amerikas ; *E. rusticum*, Arizona, p. 323, *helluo*, Lower California, p. 324, *marxi*, California, &c., *lanceolatum*, Nicaragua, p. 335, *caniceps*, Mexico, p. 336, *serratum*, Mexico, *panamense*, p. 337, Panama, SIMON, Act. Soc. L. Bord. xlv ; *E. guyanum*, Guyana, p. 167, SIMON, Hist. Nat. des Araignées : n. spp.
- Evagrus rubrigularis*, Idaho, p. 320, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Grammostola*, n. g. for *Eurypelma pulchripes*, Simon, Paraguay, p. 163 ; SIMON, Hist. Nat. des Araignées.
- Hapalopus villosus*, Taquara, p. 7, pl. i, fig. 2, KEYSERLING, Spinnen Amerikas, n. sp.
- Hapalothele (Fufus) lanicia*, p. 283, *garleppi*, p. 284, Bolivia, SIMON, Ann. Soc. Ent. Fr. lxi, n. spp.
- Haploclastus*, n. g. for *H. cervinus*, n. sp., S. India, p. 152 ; SIMON, Hist. Nat. des Araignées.

- Haplopelma*, n. g. for *Selenocosmia doriae*, Thor., p. 151; SIMON, Hist. Nat. des Araignées.
- Heligmomerus*, n. g., p. 90, for *H. taprobanicus*, Kandy, *prostans*, S. India, p. 91 (in note), SIMON, Hist. Nat. des Araignées, n. spp.
- Homœomma texense*, Texas, p. 320, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Homœoplacis*, n. g. for *H. pentodon*, Amazons, p. 275, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Homostola*, n. g., p. 271, for *H. vulpecula*, Zululand, p. 271, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Hysteroocrates*, n. g. for *Phoneyusa greshoffi*, Simon, p. 153; SIMON, Hist. Nat. des Araignées.
- Idiops germaini*, Rio Grande, p. 92, SIMON, Hist. Nat. des Araignées, n. sp.
- Ischnocolus pilosus*, Rio Grande, p. 9, *gracilis*, Monte Verde, p. 11, *rubropilosus*, Neu Freiburg, p. 12, *janeirus*, Rio Janeiro, p. 13, KEYSERLING, Spinnen Amerikas, n. spp.
- Lampropelma*, n. g., p. 151, for *L. nigerrimum*, Ins. Sangir, p. 151, SIMON, Hist. Nat. des Araignées, n. sp.
- Macrothele segmentata*, Pinang, p. 284, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Magulla*, n. g. for *M. obesa*, Theresopolis, p. 276, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Myrmeciophila atkinsoni*, Virginia, p. 316, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Nemesia arenicola*, Corsica, p. 113, *didieri*, Algeria, p. 114, SIMON, Hist. Nat. des Araignées, n. spp.
- Œcophlæus*, n. g. for *Œ. cinctipes*, n. sp., Ceylon, pp. 49-51, figured, with nest, pl. iiii; POCKOCK, Ann. N. H. (6) ix: syn. *Sason robustum*, Cambr.; SIMON, Hist. Nat. des Araignées.
- Ornithoctonus*, n. g. for *O. andersoni*, Mergui, pp. 317 & 318, pl. xvii, figg. 1-3, POCKOCK, J. L. S. xxiv, n. sp.
- Orphnæcus*, n. g. for *O. pellitus*, Grotto de Calapnitan (Philippines), pp. 36 & 37, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Pachyloscelis crassipes*, Rio Grande do Sul, p. 3, pl. i, fig. 1, *luteipes*, Rio Janeiro, p. 5, KEYSERLING, Spinnen Amerikas, n. spp.
- Paraphysa*, n. g. for *P. manicata*, S. America, p. 166, SIMON, Hist. Nat. des Araignées, n. sp.
- Phlogius cunicularius*, Pinang, p. 279, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Phrissæcia*, n. g. for *P. ecuadorensis*, Ecuador, p. 274, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Plagiobothrus*, n. g., p. 272, for *P. semilunaris*, Peradenia, p. 273, pl. x, fig. 3, KARSCH, B. E. Z. xxxvi, n. sp.
- Planadecta*, n. g. for *P. lyrata*, S. America, p. 168, SIMON, Hist. Nat. des Araignées, n. sp.
- Porrhothele*, n. g. for *Mygale antipodiana*, Walek., p. 185; SIMON, Hist. Nat. des Araignées.
- Pselligmus*, n. g. for *P. infaustus*, Abrolhos, p. 273, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.

- Rachias*, n. g. for *Hermacha dispar*, Sim., p. 114; SIMON, Hist. Nat. des Araignées.
- Rhechostica*, n. g. for *Homœomma texense*, Simon, p. 162; SIMON, Hist. Nat. des Araignées.
- Scalidognathus*, n. g., p. 269, for *S. seticeps*, Peradenia, p. 270, pl. x, fig. 1, KARSCH, B. E. Z. xxxvi, n. sp.
- Scotinæcus*, n. g. for *Hexathele cinereo-pilosa*, Sim.; SIMON, Hist. Nat. des Araignées.
- Sipalolasma*, n. g., p. 123, for *S. ellioti*, Ceylon, p. 124; SIMON, Hist. Nat. des Araignées, n. sp.
- Stasimopus*, n. g., p. 81, for *Actinopus cafrus*, C. Koch, p. 81; SIMON, Hist. Nat. des Araignées.
- Stenygrocerus*, n. g. for *Macrothele silvicola*, Sim., p. 185; SIMON, Hist. Nat. des Araignées.
- Sterrhochrotus*, n. g. for *Cteniza farghanensis*, Cron., p. 97; SIMON, Hist. Nat. des Araignées.
- Stichoplastus fabrei*, India, p. 278, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Tapinauchenius cœrulescens*, Indian Terr., p. 325, *texense*, Texas, p. 326, SIMON, Act. Soc. L. Bord. xlv, n. spp.
- Thelecoris*, Karsch (syn. *Entomothele*, Simon), *zebrina*, Polvon [Nicaragua], p. 329, SIMON, Act. Soc. L. Bord. xlv, n. sp.
- Tigidia*, n. g. for *T. mauriciana*, Mauritius, p. 274, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Tmesiphantes*, n. g., for *T. nubilus*, Bahia, p. 277, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.
- Trechona auronitens*, p. 16, pl. i, fig. 3, *pantherina*, p. 18, Taquara, KEYSERLING, Spinnen Amerikas, n. spp.
- Xenesthis*, n. g., p. 332, for *X. columbiana*, Panama, p. 333, SIMON, Act. Soc. L. Bord. xlv, n. sp.

## THERIDIIDÆ.

- Achæa maxima*, Rio Grande, p. 198, pl. vii, fig. 142, *signata*, Neu Freiburg, p. 199, fig. 143, *pulchra*, Rio Janeiro, p. 200, fig. 144, KEYSERLING, Spinnen Amerikas, n. spp.
- Ariamnes longissimus*, Neu Freiburg, &c., p. 202, pl. vii, fig. 145, KEYSERLING, Spinnen Amerikas; *A. simulans*, Calcutta, p. 417, pl. xxii, CAMBRIDGE, Ann. N. H. (6) x : n. spp.
- Argyrodes fasciatus*, Singapore, p. 212, THORELL, Bull. Soc. Ent. Ital. xxiv; *A. acuminatus*, Serra Vermella, &c., p. 207, pl. vii, fig. 149, *longicaudatus*, Serra Vermella, p. 209, fig. 150, *alticeps*, Espirito Santo, p. 210, fig. 151, *altus*, Espirito Santo, p. 211, fig. 152, *ululabilis*, Taquara, p. 212, fig. 153, *striatus*, Espirito Santo, p. 213, fig. 154, KEYSERLING, Spinnen Amerikas, n. spp.
- Bathypantes parvulus*, Westr., and *gracilis*, Blk., England, pp. 392 & 393, pl. xxi, figg. 6 & 7; F. CAMBRIDGE, Ann. N. H. (6) x.

- B. decorata*, p. 44, pl. ii, fig. 41, *argenteo-maculata*, *pallida*, pl. v, fig. 42, *unimaculata*, pl. ii, fig. 65, p. 45, *inornata*, pl. v, fig. 66, *tristis*, pl. ii, fig. 45, p. 46, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Ceratinella minuta*, Em., pl. ii, fig. 60, & pl. iv, fig. 60, *bulbosa*, Em., p. 32, pl. v, fig. 59, *pygmaea*, Em., p. 32, pl. ii, fig. 57; BANKS, P. Ac. Philad. 1892.
- C. similis*, p. 31, pl. v, fig. 61, *mæsta*, p. 32, pl. ii, fig. 58, & pl. v, fig. 58, *placida*, p. 32, pl. ii, fig. 54, *formosa*, p. 33, pl. ii, fig. 55, *annulipes*, p. 33, pl. ii, fig. 56, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Ceratinopsis frontatus*, Cayuga Lake, p. 33, pl. v, fig. 63, BANKS, P. Ac. Philad. 1892, n. sp.
- Chrysso nigrosternum*, Taquara, p. 206, pl. vii, fig. 148, KEYSERLING, Spinnen Amerikas, n. sp.
- Cornicularia formosa*, p. 34, pl. v, fig. 35, *placida*, p. 35, fig. 36, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Diplostyla pallida*, pl. ii, fig. 29, *alboventris*, pl. v, fig. 31, p. 43, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Dipæna tæniatipes*, Rio Grande, p. 224, pl. viii, fig. 165, *maculata*, Espirito Santo, p. 225, fig. 166, *obscura*, Serra Vermella, p. 226, fig. 167, KEYSERLING, Spinnen Amerikas, n. spp.
- Erigone rusticella*, Rio Grande, p. 238, pl. ix, fig. 180a, *nitida*, Rio Grande, p. 239, fig. 181a, *fucosa*, p. 240, fig. 182a, *rusticula*, p. 240, fig. 183, *vegeta*, p. 241, fig. 184, Rio Grande, KEYSERLING, Spinnen Amerikas, n. spp.
- Ero goldii*, Serra Vermella, p. 218, pl. viii, fig. 159, *gracilis*, Neu Freiburg, p. 219, fig. 160, *valida*, St. Antonio, p. 220, fig. 161, *lata*, Neu Freiburg, p. 220, fig. 162, KEYSERLING, Spinnen Amerikas, n. spp.
- Euryopis lutea*, Serra Vermella, p. 227, pl. ix, fig. 168, *maculata*, Miracena, p. 227, fig. 169, KEYSERLING, Spinnen Amerikas, n. spp.
- Frontina turbidula*, Espirito Santo, p. 228, pl. ix, fig. 170, *armata*, Serra Vermella, p. 230, fig. 171, *obscura*, Espirito Santo, p. 231, fig. 172, *cylindrata*, Sao Paulo, p. 232, fig. 173, *elegans*, Rio Negro, p. 233, fig. 174, *clava*, Serra Vermella, p. 234, fig. 175, *longiceps*, Serra Vermella, p. 234, fig. 176, *decorata*, Neu Freiburg, p. 235, fig. 177, *rubriceps*, Rio Grande, p. 236, fig. 178, KEYSERLING, Spinnen Amerikas, n. spp.
- Grammonota venusta*, Cayuga Lake, p. 34, pl. v, fig. 64, BANKS, P. Ac. Philad. 1892, n. sp.
- Helvibis longicauda*, Espirito Santo, p. 204, pl. vii, fig. 146, *monticola*, Serra Vermella, p. 205, fig. 147, KEYSERLING, Spinnen Amerikas, n. spp.
- Heribertus flavomaculatus*, Serra Vermella, p. 223, pl. ix, fig. 164, KEYSERLING, Spinnen Amerikas, n. sp.
- Leptyphantès ericaeus*, Blk., England, p. 390, pl. xx, fig. 4; F. CAMBRIDGE, Ann. N. H. (6) x.

- L. plumiger*, Dorset, p. 386, pl. xx, fig. 2, F. CAMBRIDGE, Ann. N. H. (6) x, n. sp.
- Linyphia conferta*, Hentz, pl. ii, fig. 38, p. 42, Cayuga Lake ; BANKS, P. Ac. Philad. 1892.
- L. variabilis*, pl. ii, fig. 28, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. sp.
- Lophocarenum castaneum*, Em., p. 35, pl. iv, fig. 3 ; BANKS, P. Ac. Philad. 1892.
- L. triste*, p. 35, pl. iv, fig. 1, *unimaculatum*, p. 35, fig. 2, *miniatum*, fig. 4, *venustum*, fig. 5, *parvum*, fig. 6, *exiguum*, fig. 7, p. 36, *crenatoideum*, fig. 8, *formosum*, fig. 10, *arvense*, fig. 11, p. 37, *longius*, p. 38, fig. 12, Cayuga Lake ; BANKS, P. Ac. Philad. 1892, n. spp.
- Microneta latens*, pl. v, fig. 46, p. 46, *palustris*, pl. ii, fig. 47, *luteola*, pl. ii, fig. 48, *flaveola*, pl. v, fig. 42, *complicata*, pl. ii, fig. 50, p. 47, *minutissima*, pl. ii, fig. 27, *frontata*, pl. v, fig. 51, *gigantea*, pl. ii, fig. 52, *distincta*, pl. ii, fig. 53, p. 48, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Milione*, n. g., p. 215, for *M. triacantha*, n. sp., Singapore, p. 216 ; THORELL, Bull. Soc. Ent. Ital. xxiv.
- Mimetus atri-cinctus*, Stratford (N. Z.), p. 234, URQUHART, Tr. N. Z. Inst. xxiv, n. sp.
- Theridium weberi*, Singapore, p. 219, THORELL, Bull. Soc. Ent. Ital. xxiv ; *T. bellulum*, Neu Freiburg, p. 180, pl. vi, fig. 125, *unanimum*, Neu Freiburg, p. 181, fig. 126, *quadripartitum*, Sao Paulo, p. 182, fig. 127, *subrotundum*, Serra Vermella, p. 183, fig. 128, *bentificum*, Rio Grande, p. 184, fig. 129, *tinctorium*, Rio Grande, p. 185, fig. 130, *querulum*, p. 186, fig. 131, *obnubilum*, Serra Vermella, p. 187, fig. 132, *dubiosum*, Neu Freiburg, p. 187, fig. 133, *nigriceps*, Sao Paulo, p. 188, fig. 134, *notabile*, Serra Vermella, p. 189, fig. 135, *triguttatum*, Neu Freiburg, p. 190, fig. 136, *rotundum*, Neu Freiburg, p. 191, fig. 137, *pallipes*, Serra Vermella, p. 191, fig. 138, *vididum*, Espirito Santo, p. 192, fig. 139, *bicorne*, Serra Vermella, p. 193, fig. 140, *passivum*, Fazenda Calvario, p. 195, fig. 141, KEYSERLING, Spinnen Amerikas ; *T. argentatum*, Hawera, p. 235, *albo-cinctum*, p. 236, *ampliatum*, p. 237, Stratford, URQUHART, Tr. N. Z. Inst. xxiv : n. spp.
- Tmeticus unicorn*, *obscurus*, *flaveolus*, *luxuosus*, *rusticus*, *humilis*, *mæstus*, *debilis*, *palustris*, *distinctus*, *maculatus*, *minutus*, pl. iv, figg. 13-24, pp. 38-41, *gnavus*, p. 41, pl. v, fig. 44, Cayuga Lake, BANKS, P. Ac. Philad. 1892 ; *T. simplex*, Cannock, p. 384, pl. xx, fig. 5, F. CAMBRIDGE, Ann. N. H. (6) x : n. spp.
- Totua*, n. g. for *T. gracilipes*, Rio Grande, p. 216, pl. viii, fig. 158 ; KEYSERLING, Spinnen Amerikas, n. sp.
- Umfila cornuta*, Neu Freiburg, p. 222, pl. viii, fig. 163, KEYSERLING, Spinnen Amerikas, n. sp.

## THOMISIDÆ.

- Camaricus formosus*, Thor., figured on pl. iv, by WORKMAN, Malaysian Spiders.
- Diwa zonura*, Sumatra, pp. 95-98, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Daradius javanus*, Java, pp. 78-82, *perspicillatus*, Sarawak, pp. 82-86, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Hedana perspicax*, Sumatra, pp. 106-109, *ocellata*, Java, pp. 109-113, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Microcyllus*, n. g., p. 118, for *M. elegans*, Sumatra, pp. 119-121, *nanus*, Java, pp. 121 & 122, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Misumena foliata*, p. 57, pl. iii, fig. 17, & pl. ii, fig. 37, *placida*, p. 58, Cayuga Lake, BANKS, P. Ac. Philad. 1892; *M. dierythra*, Singapore, p. 92, THORELL, Ann. Mus. Genov. xxxi; *M. maculis-sparsa*, Taquara, p. 246, pl. x, fig. 186, KEYSERLING, Spinnen Amerikas; *M. clarkii*, Madeira, p. 219, pl. xiv, figg. 7 & 8, WARBURTON, Ann. N. H. (6) x : n. spp.
- Musceus*, n. g., pp. 71 & 72, for *M. politus*, n. sp., Sumatra, pp. 72-75; THORELL, Ann. Mus. Genov. xxxi.
- Narceus*, n. g., p. 79, for *N. picinus*, n. sp., Java, pp. 100-102; THORELL, Ann. Mus. Genov. xxxi.
- Palephatus pseudorchestes*, Sumatra, p. 127, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Pellorhynchus*, n. g., pp. 113 & 114, for *P. rostratus*, n. sp., Java, pp. 114-117, THORELL, Ann. Mus. Genov. xxxi; also figured, pl. iii, by WORKMAN, Malaysian Spiders.
- Runcinia kinbergii*, pp. 86-89, *distincta*, pp. 89-91, Java, THORELL, Ann. Mus. Genov. xxxi, n. spp.
- Synema luteovittata*, Rio Grande, p. 247, pl. x, fig. 187, KEYSERLING, Spinnen Amerikas, n. sp.
- Tharpya varica*, Java, p. 102, THORELL, Ann. Mus. Genov. xxxi, n. sp.
- Tmarus eques*, Java, pp. 75-78, THORELL, Ann. Mus. Genov. xxxi; *T. variatus*, pl. x, fig. 188, *clavipes*, p. 280, fig. 189, Taquara, KEYSERLING, Spinnen Amerikas : n. spp.
- Xysticus distinctus*, pl. iii, fig. 89, *brunneus*, pl. iii, fig. 4, *crudelis*, fig. 5, *transversus*, fig. 6, *lentus*, pl. ii, fig. 67, *nervosus*, pl. iii, fig. 8, & pl. iv, fig. 84, *formosus*, pl. iii, fig. 9, pp. 52-56, Cayuga Lake, BANKS, P. Ac. Philad. 1892, n. spp.
- Zametopias*, n. g., pp. 122 & 123, for *Z. speculator*, Sumatra, pp. 123-126; THORELL, Ann. Mus. Genov. xxxi, n. sp.

## ULOBORIDÆ.

- Æbutina*, n. g. for *Æ. binotata*, n. sp., Brazil, p. 222, SIMON, Hist. Nat. des Araignées. According to SIMON, *t. c.*, this genus is the sole representative of the subfamily *Æbutininae* of the family *Uloboridae*.

- Hyptiotes analis*, n. sp., Kandy, p. 219, SIMON, Hist. Nat. des Araignées.  
According to SIMON, *t. c.*, this genus constitutes, with *Miagrammopes*, the subfamily *Miagrammopinae* of the family *Uloboridae*.  
*Uloborus quadri-tuberculatus*, Singapore, p. 221, THORELL, Bull. Soc. Ent. Ital. xxiv, n. sp.

## ZODARIIDÆ and ZOROPSIDÆ.

- Habronestes* (Zodariidæ) *major*, p. 158, pl. iv, fig. 109, *minor*, p. 159, fig. 110, Blumenau, KEYSERLING, Spinnen Amerikas, n. spp.  
*Ræcius*, n. g. of *Zoropsidæ*, for *Amaurobius crassipes*, L. Koch, p. 230, SIMON, Hist. Nat. des Araignées.

## (D.) PSEUDOSCORPIONES.

- BALZAN, Ann. Soc. Ent. Fr. lx, divides this group into two suborders : the *Pantennodactyli*, containing the *Cheliferidæ*, and the *Hemictenodactyli*, for the *Obisiidæ* and *Pseudobisiidæ*.

## CHELIFERIDÆ.

- Atemnus nidificator*, n. var. *minor*, San Esteban, p. 510, *pallidus*, Sierra Leone, p. 511, pl. ix, fig. 2, *subrobustus*, Caraccas, p. 512, fig. 3, BALZAN, Ann. Soc. Ent. Fr. lx, n. spp.  
*Chernes insuetus*, Dover, p. 225, pl. c, fig. 17, *dubius*, Sherborne, p. 227, fig. 19, CAMBRIDGE, P. Dorset Field Club, xiii, n. spp.  
*Lamprochernes macrochelatus*, Töm., and *argentinus*, Thor., Venezuela, pp. 513 & 516, pl. ix, figg. 4 & 7 ; BALZAN, Ann. Soc. Ent. Fr. lx.  
*L. octentoctus*, S. Africa, p. 514, fig. 5, *intermedius*, Venezuela, p. 515, fig. 6, *similis*, Manaos, p. 517, fig. 8, *venezuelanus*, San Esteban, p. 518, fig. 9, *ovatus*, Caraccas, fig. 10, *thorelli*, Sumatra, pl. x, fig. 11, p. 519, *elegans*, Venezuela, p. 520, fig. 12, BALZAN, Ann. Soc. Ent. Fr. lx, n. spp.  
*Trachychernes subrudis*, Venezuela, p. 521, pl. x, fig. 13, *subrotundatus*, Venezuela, p. 522, fig. 14, *floridæ*, Florida, p. 524, fig. 15, *bicolor*, Venezuela, p. 524, Caraccas, fig. 16, *albomaculatus*, Venezuela, p. 526, fig. 17, *armiger*, Pebas, p. 527, fig. 18, BALZAN, Ann. Soc. Ent. Fr. lx, n. spp.  
*Chelifer canestrinii*, Balz., p. 532, fig. 22, *meridianus*, L. Koch, fig. 23, *longichelifer*, Balz., Venezuela, p. 534, fig. 26, *rufus*, Balz., fig. 25 ; BALZAN, Ann. Soc. Ent. Fr. lx.  
*C. pekinensis*, Pekin, p. 528, pl. xi, fig. 19, *simoni*, Sierra Leone, p. 529, fig. 20, *tenuimanus*, Nossi-bé, p. 531, fig. 21, *degeneratus*, S. California, p. 532, fig. 24, BALZAN, Ann. Soc. Ent. Fr. lx, n. spp.  
*Garypus senegalensis*, Senegal, p. 535, pl. xii, fig. 27, BALZAN, Ann. Soc. Ent. Fr. lx, n. sp.  
*Olpium crassichelatum*, Balz., fig. 29, Venezuela ; BALZAN, Ann. Soc. Ent. Fr. lx.  
*O. cordimanum*, Venezuela, p. 536, pl. xii, fig. 28, *furculiferum*, Venezuela, p. 537, fig. 30, BALZAN, Ann. Soc. Ent. Fr. lx, n. spp.

## PSEUDOBISIIDÆ.

N. fam., p. 539 ; BALZAN, Ann. Soc. Ent. Fr. lx.

## PSEUDOBISIINÆ.

N. subfam., p. 539 ; BALZAN, Ann. Soc. Ent. Fr. lx.

*Ideobisium*, n. g., p. 539, (*Ideoroncus*) *gracilis*, n. sp., Venezuela, p. 540, pl. xii, fig. 31 ; BALZAN, Ann. Soc. Ent. Fr. lx.

*Ideoblothrus*, n. subg. of *Ideobisium*, p. 541, for *I. similis*, n. sp., Venezuela, p. 541, pl. xii, fig. 32 ; BALZAN, Ann. Soc. Ent. Fr. lx.

*Ideobisium crassimanum*, n. sp., Venezuela, p. 542, pl. xii, fig. 33, BALZAN, Ann. Soc. Ent. Fr. lx.

## MICROCREAGRINÆ.

N. subfam. ; BALZAN, Ann. Soc. Ent. Fr. lx, p. 543.

*Microcreagris*, n. g., p. 543, for *M. gigas*, n. sp., China, p. 544, pl. xii, fig. 34 ; BALZAN, Ann. Soc. Ent. Fr. lx.

## OBISIIDÆ.

## CHTHONIINÆ.

N. subfam., p. 545 ; BALZAN, Ann. Soc. Ent. Fr. lx.

*Chthonius parvidentatus*, Balz., p. 547, fig. 36 ; BALZAN, Ann. Soc. Ent. Fr. lx.

*C. (Pseudochthonius*, n. subg.) *simoni*, Caraccas, p. 546, pl. xii, fig. 35, BALZAN, Ann. Soc. Ent. Fr. lx, n. sp.

## (E.) OPILIONES.

*Caddo*, n. g., for *C. agilis*, n. sp., Long I., p. 280 ; BANKS, P. E. Soc. Wash. ii.

*Gagrella ceylonensis*, p. 308, *bispinosa*, Passelawa, p. 309, KARSCH, B. E. Z. xxxvi, n. spp.

*Liobunum vittatum*, Say, pp. 999-1008, pls. xxvii & xxviii ; WEED, Am. Nat. xxvi.

*Phalangium cinereum*, Wood, pp. 32-36, pl. i, figg. 1 & 2 ; WEED, Am. Nat. xxvi.

*Pseudarthromerus*, n. g., p. 308, for *P. spurius*, n. sp., Nalanda (Ceylon), p. 308 ; KARSCH, B. E. Z. xxxvi.

*Zalmoxis sorenseni*, in caves, Luzon, p. 44, SIMON, Ann. Soc. Ent. Fr. lxi, n. sp.

*Cryptostemma*, Guér., notes on, with fig. ; the genus referred to the order *Meridogastra* of Thorell ; KARSCH, B. E. Z. xxxvii, pp. 25-32 & 64.

## (F.) ACARI.

## BDELLIDÆ.

- Bdella lignicola*, G. Can., pt. lxii, No. 7; BERLESE, Acari in Italia reperta.  
*Linopodes*, pt. lxi, No. 1, *motatorius*, L., Italy, No. 2, BERLESE, Acari in Italia reperta.  
*Norneria*, pt. lxi, No. 6, *gigas*, R. Can., No. 7; BERLESE, Acari in Italia reperta.  
*Notophallus longipilis*, R. Can., pt. lxi, No. 4, *minor*, R. Can., No. 5, Italy; BERLESE, Acari in Italia reperta.  
*Pronematus bonatii*, Can., Italy, pt. lxi, No. 3; BERLESE, Acari in Italia reperta.

## EUPODIDÆ.

- Scyphius maniacus*, Guatemala, p. 17, pl. vi, fig. 2, STOLL, Acari in Biol. Centr.-Amer., n. sp.

## GAMASIDÆ.

- Antennophorus*, characterized, pt. lxx, No. 1; BERLESE, Acari in Italia reperta.  
*Celæno*, characterized, pt. lxix, No. 3; BERLESE, Acari in Italia reperta.  
*Celænopsis uropodoides*, British Honduras, p. 35, pl. xvi, fig. 4, & pl. xix, fig. 3, *megisthanoides*, Panama, p. 36, pl. xix, fig. 4, & pl. xx, fig. 1, STOLL, Acari in Biol. Centr.-Amer., n. spp.  
*Cyrtolaelaps*, pt. lxiv, No. 3, *falciger*, Can., pt. lxiii, No. 4, *nemorensis*, Koch, No. 5, n. var. *placida*, No. 6, *captator*, n. sp., pt. lxviii, No. 8, *spiricornis*, Can., pt. lxviii, No. 9, *cervus*, Kram., No. 10; BERLESE, Acari in Italia reperta.  
*Dinychus*, characterized, pt. lxx, No. 9; BERLESE, Acari in Italia reperta.  
*Epicrius*, characterized, Can. & Fanz., pt. lxix, No. 10; BERLESE, Acari in Italia reperta.  
*Gamasus*, pt. lxviii, No. 1, *dentipes*, Koch, No. 2, *cornutus*, Can., No. 3, *furcatus*, Can., No. 4, *crassus*, Kram., pt. lxix, No. 6, *coleopratorum*, L., No. 7, *rubescens*, Can., No. 9, *attenuatus*, Koch, pt. lxiii, No. 7, n. var. *minor*, No. 8; BERLESE, Acari in Italia reperta.  
*G. pusillus*, pt. lxix, No. 8; BERLESE, Acari in Italia reperta, n. sp.  
*Hydrogamasus*, n. g., pt. lxviii, No. 5, for *H. litoralis*, Can., No. 6; BERLESE, Acari in Italia reperta.  
*Iphidosoma*, n. g., pt. lxx, No. 11, for *finetarium*, Can., *ovatum*, n. sp., pt. lxix, No. 5; BERLESE, Acari in Italia reperta.  
*Laelaps (Iphis) aculeifer*, Can., and n. var. *longior*, No. 10, *ostrinus*, Koch, pt. lxvi, No. 4, *halleri*, Can., pt. lxvii, No. 6, *bombicolens*, No. 8, *lignicola*, Can., pt. xx, No. 2, *krameri*, Can., No. 4; *L. (s.s.) holostaspoides*, Can., pt. lxx, No. 13, *uncinatus*, Can., No. 15, Italy; BERLESE, Acari in Italia reperta.

- L. (Iphis) miles*, pt. lxiii, No. 9, *semiscissus*, No. 7, Italy, BERLESE, Acari in Italia reperta; *L. (s.s.) complanatus*, p. 383, in nest of *Formica fusca*, MONIEZ, Rev. Biol. iv; *L. (s.s.) canestrini*, pt. lxix, No. 1, *myrmecophilus*, No. 2, Italy, BERLESE, Acari in Italia reperta: n. spp.
- Leiognathus lacertinus*, pt. lxx, No. 3, BERLESE, Acari in Italia reperta, n. sp.
- Megisthanus armiger*, Berlese, Mexico, p. 34, pl. xix, fig. 1; STOLL, Acari in Biol. Centr.-Amer.
- M. gigantodes*, Guatemala, p. 31, pl. xviii, figg. 1 & 2, STOLL, Acari in Biol. Centr.-Amer., n. sp.
- Neoberlesia*, n. g. for *N. equitans*, n. sp., pl. lxii, No. 5; BERLESE, Acari in Italia reperta.
- Ophionyssus natricis*, Gerv., pt. lxx, No. 12; BERLESE, Acari in Italia reperta.
- Podocinum*, characterized, pt. lxx, No. 10; BERLESE, Acari in Italia reperta.
- Pachylaelaps strigifer*, Berl., pt. lxiv, No. 4, n. var. *siculus*, No. 5, *pectinifer*, Can., No. 6, n. var. *siculus*, pt. lxv, No. 10, BERLESE, Acari in Italia reperta; *P. heros*, n. var. *mexicanus*, Mexico, p. 37, pl. xix, fig. 2, STOLL, Acari in Biol. Centr.-Amer.
- Pacilochirus*, pt. lxx, No. 11, *fucorum*, De Geer, *emarginatus*, Koch, and *spinipes*, Koch, pt. lxix, No. 4; BERLESE, Acari in Italia reperta.
- Polyaspis*, characterized, pt. lxx, No. 8; BERLESE, Acari in Italia reperta.
- Seiodes*, pt. lxx, No. 7, *lustricinus*, pt. lxx, No. 5, BERLESE, Acari in Italia reperta, n. sp.
- Stylorhinus rovennensis*, Can., pt. lxx, No. 13; BERLESE, Acari in Italia reperta.
- Uropoda spatulifera*, n. sp., with *Formica rufa*, p. 383, MONIEZ, Rev. Biol. iv; *U. lagena*, n. sp., *tridentina*, Can., pt. lxx, No. 14, BERLESE, Acari in Italia reperta.
- U. echinata*, p. 28, pl. xvi, fig. 2, *inequipunctata*, p. 29, pl. xvi, fig. 3, *discus*, p. 29, pl. xvii, fig. 4, Guatemala, *centro-americana*, Nicaragua, p. 30, pl. xvii, fig. 1, *piriformis*, Mexico, p. 31, fig. 3, STOLL, Acari in Biol. Centr.-Amer., n. spp.
- Zercon acanthurus*, Can., pt. lxx, No. 6; BERLESE, Acari in Italia reperta.

## HYDRACHNIDÆ.

- Arrhenurus decurtator*, p. 520, MONIEZ, Rev. Biol. iv, n. sp.
- Feltria*, n. g., p. 323, for *F. minuta*, n. sp., Rhoetia, p. 323; KÆNIKE, Zool. Anz. xv.
- Weltina*, n. g. for *W. micropticus*, n. sp., p. 410; PIERSIG, Zool. Anz. xv.
- Zschokkea*, n. g., p. 320, for *Z. oblonga*, n. sp., Rhoetia, p. 32; KÆNIKE, Zool. Anz. xv.

## IXODIDÆ.

The Ticks of this group are considered by MARX, P. E. Soc. Wash. ii, pp. 271-287, to rank as a suborder of *Acari*, for which the name *Cynorhæstea* is proposed. This suborder is divided into two sections:

*Catastomata* for the *Eschatocephalidæ* and *Argasidæ*, and *Antistomata* for the *Hæmalastoridæ*, *Ixodidæ*, and *Rhipistomidæ*. These families, and all the genera they contain, are characterized.

*Amblyomma mixtum*, C. Koch, Mexico, &c., p. 19, pl. xii, figg. 1 & 2 ; STOLL, Acari in Biol. Centr.-Amer.

*A. foreli*, Guatemala, p. 21, pl. xii, fig. 3, & pl. xiv, fig. 3, *crassipunctatum*, Nicaragua, p. 22, pl. xiv, fig. 1, *sabaneræ*, Guatemala, p. 23, pl. xiv, fig. 2, STOLL, Acari in Biol. Centr.-Amer., n. spp.

*Boophilus*, n. g. for *B. bovis*, Riley ; CURTICE, J. Comp. Med. Vet. Arch. 1891.

*Ixodes respertilionis*, Koch, pt. lxi, No. 9, *hexagonus*, Leach, No. 10, Italy ; BERLESE, Acari in Italia reperta.

*I. varani*, Natal, pp. 10-14, LEWIS, J. Quek. Club, v ; *I. boarum*, Guatemala, p. 18, pl. xiii, fig. 1, & pl. xiv, fig. 4, STOLL, Acari in Biol. Centr.-Amer., n. spp.

#### NICOLETIELLIDÆ.

*Nicolettiella neotropica*, Guatemala, p. 27, pl. xvi, fig. 1, STOLL, Acari in Biol. Centr.-Amer., n. sp.

#### ORIBATIDÆ.

*Belba*, pt. lxiii, No. 3, *pectinata*, Mich., pt. xli, No. 8 ; BERLESE, Acari in Italia reperta.

*Discopoma*, Can., pt. lxviii, No. 7 ; BERLESE, Acari in Italia reperta.

*Hermannia*, pt. lxvii, No. 10, *nana*, Nic., pt. lxiii, No. 1 ; BERLESE, Acari in Italia reperta.

*Hoplophora*, Koch, pt. lxvii, No. 5, *magna*, Nic., pt. lxvii, No. 9 ; BERLESE, Acari in Italia reperta.

*H. retalteca*, Guatemala, p. 27, pl. xv, fig. 4, STOLL, Acari in Biol. Centr.-Amer., n. sp.

*Oppia tibialis*, Nic., pt. lxiv, No. 1, n. var. *sicula* ; *ucorum*, Koch, No. 2 ; BERLESE, Acari in Italia reperta.

*Oribates mucronatus*, Can., pt. lxii, No. 8 ; BERLESE, Acari in Italia reperta.

*O. centro-americana*, Panama, Honduras, p. 24, pl. xv, fig. 1, *nigrifrons*, Belize and Guatemala, p. 25, pl. xv, fig. 2, STOLL, Acari in Biol. Centr.-Amer., n. spp.

*Zetorchestes*, pt. lxiii, No. 2 ; BERLESE, Acari in Italia reperta.

#### PHYTOPTIDÆ.

*Anthocoptes*, n. g. for *P. loricatus*, *galeatus*, *heteroproctus*, &c., p. 16 ; NALEPA, SB. Ac. Wien, 1892.

*A. platynotus*, p. 191, NALEPA, SB. Ak. Wien, 1892, n. sp.

*Cecidophyes syriacus*, p. 158, FOCKEU, Rev. Biol. iv ; *C. minor*, p. 16, *gemmarum*, p. 128 ; NALEPA, SB. Ak. Wien, 1892 : n. spp.

- Monaulax*, n. g., p. 191, for *M. sulcatus*, n. sp., p. 192; NALEPA, SB. Ak. Wien, 1892.
- Oxypleurites*, n. subg. of *Tegonotus*, for *O. (T.) trouessarti*, p. 330, pl. xiii, figg. 3 & 4, *serratus*, p. 333, pl. xiii, figg. 7-9, n. spp., and *heptacanthus*, Nal., p. 335, pl. xiii, figg. 10-12; NALEPA, Zool. Jahrb. vi.
- Phyllocoptes magnirostris*, *parvus*, p. 128, *populinus*, p. 16, *gracilipes*, *compressus*, *gigantorhynchus*, *comatus*, p. 191, NALEPA, SB. Ak. Wien, 1892, n. spp.
- Phytocoptes longifilis*, p. 380, *cytiscicola*, p. 6, CANESTRINI, Atti Soc. Ven.-Trent. xii; *rostratus*, Syria, p. 232, fig., FOCKEU, Rev. Biol. iv : n. spp.
- Phytoptus vitalbæ*, p. 79, *breviceps*, p. 80, CANESTRINI, Bull. Soc. Ven.-Trent. v; *P. xylostei*, p. 377, *peucedani*, p. 378, *sanguisorbæ*, p. 379, CANESTRINI, Atti Soc. Ven.-Trent. xii; *P. lycii*, p. 837, *carveli*, p. 838, *effusus*, p. 838, CANESTRINI, Atti Ist. Venet. i; *P. eryugii*, p. 5, CANESTRINI, op. cit. li; *P. curvatus*, p. 152, fig., *barroisi*, p. 154, fig., *ephedrae*, p. 155, fig., *orientalis*, p. 156, fig., *fusiformis*, p. 231, fig., Syria, FOCKEU, Rev. Biol. iv; *P. eucricotes*, *triradiatus*, p. 128, NALEPA, SB. Ak. Wien, 1892; *P. pilosellus*, *tenellus*, *glaber*, *gibbosus*, *alpestris*, pp. 190 & 191, NALEPA, t. c.; *P. cladophthirus*, p. 16, NALEPA, SB. Ak. Wien, 1892 : n. spp.
- P. tilia*, n. var. *liosoma*, p. 16; NALEPA, SB. Ak. Wien, 1892.
- Tegonotus*, n. gen., pp. 327-329, for *T. carinatus*, n. sp., p. 329, pl. xiii, figg. 1 & 2; NALEPA, Zool. Jahrb. vi.
- T. fastigatus*, p. 332, pl. xiii, figg. 5-7, NALEPA, Zool. Jahrb. vi; *T. salicobius*, p. 128, NALEPA, SB. Ak. Wien, 1892 : n. spp.
- Trimerus trinitus*, p. 191, NALEPA, SB. Ak. Wien, 1892, n. sp.

## SARCOPTIDÆ.

- Canestrinia procrusti*, Berl., pt. lxxv, No. 9; BERLESE, Acari in Italia reperta.
- Chorioptes* or *Symbiotes*, question of identity; BUYSSON, Bull. Soc. Ent. Fr. 1891, p. clx.
- Megninia oscinum*, Koch, pt. xlv, No. 3; BERLESE, Acari in Italia reperta.
- M. pteroglossorum*, Guatemala, p. 40, pl. xxi, fig. 5, STOLL, Acari in Biol. Centr.-Amer., n. sp.
- Proctophyllodes glandarius*, Koch, pt. lxxv, No. 7; BERLESE, Acari in Italia reperta.
- P. sialiarum*, Guatemala, p. 42, pl. xvi, figg. 3 & 4, STOLL, Acari in Biol. Centr.-Amer., n. sp.
- Pterocolus bifurcatus*, Trouess., pt. lxxv, No. 8; BERLESE, Acari in Italia reperta.
- Pterolichus securiger*, Rob., pt. lxxv, No. 4, *proctogamus*, No. 5, *rhebergi*, Can. & Berl., No. 6; BERLESE, Acari in Italia reperta.

- P. momotorum*, Guatemala, p. 41, pl. xxi, figg. 1 & 2, STOLL, Acari in Biol. Centr.-Amer., n. sp.  
*Pteronyssus fuscus*, Nitz., pt. lxxv, No. 2; BERLESE, Acari in Italia reperta.

## TROMBIDIIDÆ.

- Cheyletiella chanayi*, Berl. & Trouess., pt. lxxvi, No. 3; BERLESE, Acari in Italia reperta.  
*Gekobia insignis*, pt. lxxvi, No. 1, *loricata*, No. 2, BERLESE, Acari in Italia reperta, n. spp.  
*Rhyncholophus regalis*, Koch, pt. lxxii, No. 6; BERLESE, Acari in Italia reperta.

## TYROGLYPHIDÆ.

- Glyciphagus peregrinus*, pt. lxxv, No. 1, BERLESE, Acari in Italia reperta, n. sp.  
*Tyroglyphus wasmanni*, p. 397, MONIEZ, Rev. Biol. iv, n. sp.



## XII. MYRIOPODA AND PROTOTRACHEATA.

BY

R. I. POCKOCK.

---

### MYRIOPODA.

- |   |                          |
|---|--------------------------|
| I. TITLES, p. 1.                                  | III. DISTRIBUTION, p. 3. |
| II. ANATOMY, PHYSIOLOGY,<br>PHYLOGENY, &c., p. 3. | IV. SYSTEMATIC, p. 3.    |

PROTOTRACHEATA, p. 6.

---

### MYRIOPODA.

#### I. TITLES.

- BERLESE, A. *Acari, Myriopoda et Scorpiones hucusque in Italia reperta* Padova. Pts. lxii, lxiv, lxvi, & lxvii.
- BERNARD, H. M. An endeavour to show that the tracheæ of the *Arthropoda* arose from setiparous sacs. Zool. Jahrb. v, p. 511.
- BROLEMAN, H. W. Contributions a la faune Myriapodologique Méditerranéenne. Dix espèces nouvelles. Ann. Soc. L. Lyon, xxix, pp. 7-40, pls. i-iii.
- CAMUS, F. Note sur la présence de *Geophilus submarinus*, &c., sur le côte de Préfaulle, Loire Inférieure. Bull. Sci. Nat. l'Ouest, Nantes, ii, No. 1, pp.
- CHILD, C. M. The Functions of the Nervous System in the *Myriopoda*. Am. Nat. xxvi, pp. 1051-1055.

- HERBST, C. Beiträge zur Kenntniss der Chilopoden. Drüsen : Coxalorgan, Gefässsystem, u. Eingeweidenervensystem, with 5 plates. Bibl. Zool. pt. ix, pp. 1-42.
- KOVALEVSKY, A. Sur les organes excréteurs des *Arthropodes* terrestres. Congr. Internat. Zool. pt. i, p. 187.  
*Myriopoda*, p. 205.
- LATZEL, R. Note sur quelques Myriapodes de Tahiti. Bull. Soc. Z. Fr. xvii, No. 7, pp. 185 & 186.
- POCOCK, R. I. (1) On the *Myriopoda* and *Arachnida* collected by Dr. Anderson in Algeria and Tunisia. P. Z. S. 1892, pt. i, pp. 24-28.
- . (2) Supplementary notes on the *Arachnida* and *Myriopoda* of the Mergui Archipelago, with descriptions of some new species from Spain and Malaysia. J. L. S. xxiv, pp. 319-326.
- . (3) Report upon two collections of *Myriopoda* sent from Ceylon by Mr. E. E. Green, and from various parts of Southern India by Mr. Edgar Thurston of the Government Central Museum, Madras. J. A. S. (Bombay) vii, No. 2, pp. 131-174.
- . (4) *Arachnida* and *Myriopoda* in W. L. Distant's Naturalist in the Transvaal. London (R. H. Porter) : 1892, pp. 179-184.
- PRENANT, A. Les corps intermédiaires de Flemming dans les cellules séminales de la Scolopendre et de la Lithobie. C.R. Soc. Biol. (9) iv, pp. 172-176.
- SINCLAIR, F. G. A new mode of respiration in the *Myriopoda*. P. R. Soc., No. 303, pp. 200 & 201 ; also in Ann. N. H. (6) ix, p. 263.
- VERHOEFF, C. (1) Vorläufige Mittheilung über eine neue deutsche *Chordeuma*-Art. Zool. Anz. xv, p. 109.
- . (2) Neue *Diplopoden* der paläarktischen Region. T. c. pp. 377 & 390, &c.
- . (3) Ein Beitrag zur Kenntniss der gattung *Chordeuma* (*Diplopoda*) und einige Notizen zur deutschen *Diplopoden* Fauna. B. E. Z. xxxvii, pp. 7-14.
- . (4) Bearbeitung der von A. F. Moller auf der Insel St. Thomas gesammelten Chilopoden und *Diplopoden*. T. c. pp. 192 & 193.
- . (5) Zur Kenntniss der Analpleurendrüsen bei Scolopendriden. T. c. pp. 203-208.
- ZOGRAF, N. Sur l'origine et les parentes des *Arthropodes* principalement des *Arthropodes* tracheates. Congr. Internat. Zool. 1892, pt. i, p. 278, &c.

## II.—ANATOMY, PHYSIOLOGY, PHYLOGENY, &amp;c.

Origin of tracheate Arthropods ; ZOGRAF.

Origin of tracheal tubes ; BERNARD.—Respiration of *Scutigera* ; SINCLAIR.

Nervous system, functions of ; CHILD.

Seminal cells of *Scolopendra* and *Lithobius* ; PRENANT.—Pleural glands of *Scolopendridæ* ; VERHOEFF (5).—Glands, coxal organs, &c., of *Chilopoda* ; HERBST.—Excretory organs ; KOVALEVSKY.

## III.—DISTRIBUTION.

*Palæarctic Region.*

W. Europe : various localities ; VERHOEFF (1-3).

Italy : BERLESE, BROLEMAN.

Coast of France : CAMUS.

Algeria and Tunisia : POCOCK (1).

*Ethiopian Region.*

St. Thomas (Gulf of Guinea) : VERHOEFF (4).

Transvaal : POCOCK (4).

*Oriental and Australian Regions.*

India and Ceylon : POCOCK (3).

Mergui : POCOCK (2).

Malaysia (Siam, Borneo, &c.) : POCOCK (2).

Tahiti : LATZEL.

## IV.—SYSTEMATIC.

## CHILOPODA.

## SCUTIGERIDÆ.

*Scutigera*, Lam., characterized with figures of details, pt. lxvi, No. 7 ;  
BERLESE, Myriopoda in Italia reperta.

## LITHOBIIDÆ.

*Henicops*, Newp., characterized, pt. lxvi, No. 8, *cæculus*, Brol., Milan,  
No. 9 ; BERLESE, Myriopoda in Italia reperta.

*Lithobius lapidicola*, Mein., pt. lxvi, No. 10, *lucifugus*, L. Koch, pt. lxvii,  
No. 3, *dentatus*, C. Koch, No. 4, Italy ; BERLESE, Myriopoda in  
Italia reperta.

- L. acuminatus*, Lombardy, p. 7, pl. i, fig. 1, BROLEMAN, Ann. Soc. L. Lyon, xxix ; *L. scutigeroïdes*, St. Thomas (Gulf of Guinea), p. 201, VERHOEFF, B. E. Z. xxxvii : n. spp.

## SCOLOPENDRIDÆ.

- Cormocephalus pygmaeus*, Madras, p. 140, POCOCK, J. A. S. (Bombay) vii, n. sp.  
*Otostigma ceylonicum*, *splendens*, and *morsitans* compared, p. 140 ; POCOCK, J. A. S. (Bombay) vii. *O. productum*, Karsch, St. Thomas (Gulf of Guinea), redescribed, p. 199 ; VERHOEFF, B. E. Z. xxxvii.  
*O. owenii*, Mergui, p. 319, POCOCK, J. L. S. xxiv, n. sp.  
*Heterostoma spinosum*, *paucispinosum*, and *triste* compared, pp. 138 & 139 ; POCOCK, J. A. S. (Bombay) vii.

## GEOPHILIDÆ.

- Chaetechelyne*, Mein., characterized, pt. lxvi, No. 5 ; BERLESE, Myriopoda in Italia reperta.  
*Dignathodon*, Mein., characterized, pt. lxvi, No. 6 ; BERLESE, Myriopoda in Italia reperta.

## DIPLOPODA.

## POLYXENIDÆ.

- Polyxenus ceylonicus*, Punduloya (Ceylon), p. 142, POCOCK, J. A. S. (Bombay), vii, n. sp.

## GLOMERIDÆ.

- Glomeris* characterized, pt. lxvii, No. 1, *marmorata*, C. Koch, pt. lxii, No. 1, varieties, No. 2, *hexasticha*, Br., No. 3, var. *pallidior*, No. 4, *multistriata*, C. Koch, No. 10, *aurita*, C. Koch, pt. lxiv, No. 7, *marginata*, Vill., No. 8, *connexa*, C. Koch, No. 9, var. *tenebrosa*, Latz., No. 10, from Italy ; BERLESE, Myriopoda in Italia reperta.  
*G. pusilla*, No. 9, Italy, BERLESE, Myriopoda in Italia reperta ; *G. occulto-colorata*, Coimbra, p. 390, VERHOEFF, Zool. Anz. xv : n. spp.  
*Gervaisia*, Waga, characterized, with figures of details, pt. lxvii, No. 2 ; BERLESE, Myriopoda in Italia reperta.  
*Zephronia brandti*, Humb., syn. *Z. chitonoides* and *rugulosa*, Butl., Ceylon, pp. 143 & 144 ; *inermis*, Humb., syn. *corrugata* and *leopardina*, Butl., Ceylon, pp. 144 & 145 ; *heterostictica*, Newp., syn. *lutescens* and *atri-sparsa*, Butl., Madras, pp. 145-147 ; POCOCK, J. A. S. (Bombay), vii.

## POLYDESMIDÆ.

- Polydesmus subulifer*, n. sp., syn. *P. complanatus*, Auct. Ital., p. 10, pl. i, fig. 4; *brevimanus*, p. 13, fig. 3, *fissilobus*, p. 216, fig. 2, *bigeniculatus*, p. 20, fig. 5, n. spp., Lombardy, BROLEMAN, Ann. Soc. L. Lyon, xxix; *P. lusitanicus*, Coimbra, p. 389, VERHOEFF, Zool. Anz. xv, n. sp.
- Brachydesmus insculptus*, Algeria, p. 27, with fig., Pocock, P. Z. S. 1892, n. sp.
- Strongylosoma cingalense* and *skinneri* compared, pp. 150 & 151; Pocock, J. A. S. (Bombay) vii.
- S. setosum*, Mergui, p. 320, Pocock, J. L. S. xxiv; *S. greeni*, Ceylon, p. 140, pl. ii, fig. 14, *phipsoni*, Calcutta, p. 151, pl. i, fig. 4, & pl. ii, fig. 13, *jerdoni*, Madras, p. 152, Pocock, J. A. S. (Bombay) vii; *S. lusitanicum*, Portugal, p. 383, *berthaudi*, Coimbra, p. 389, VERHOEFF, Zool. Anz. xv : n. spp.
- Leptodesmus tanjoricus*, Tanjore, p. 147, pl. i, fig. 3, Pocock, J. A. S. (Bombay) vii, n. sp.
- Cryptodesmus ceylonicus*, p. 153, pl. ii, fig. 2, *greeni*, p. 154, pl. ii, fig. 3, Ceylon, Pocock, J. A. S. (Bombay) vii, n. spp.
- Pyrgodesmus*, n. g., p. 155, for *P. obscurus*, n. sp., Ceylon, p. 155, pl. ii, fig. 1; Pocock, J. A. S. (Bombay) vii.

## CHORDEUMIDÆ.

- Atractosoma lombardicum*, p. 22, pl. ii, fig. 6, *tellinense*, p. 25, fig. 7, Lombardy, BROLEMAN, Ann. Soc. L. Lyon, xxix, n. spp.
- Chordeuma germanicum*, Rhineland, p. 109, VERHOEFF, Zool. Anz. xv, also p. 10, *id.* B. E. Z. xxxvii, n. sp.
- Craspedosoma dentatum*, p. 28, pl. ii, fig. 8, Lombardy, BROLEMAN, Ann. Soc. L. Lyon, xxix, n. sp.

## LYSIOPETALIDÆ.

- Stemmiulus*, Gervais, characterized, p. 156; Pocock, J. A. S. (Bombay) vii.
- S. ceylonicus*, Ceylon, p. 157, pl. i, fig. 2, Pocock, J. A. S. (Bombay) vii, n. sp.

## POLYZONIDÆ.

- Siphonophora humberti*, Ceylon, p. 173, Pocock, J. A. S. (Bombay) vii, n. sp.

## JULIDÆ.

- Julus intermedius*, p. 30, pls. ii & iii, fig. 9, *cantonii*, p. 36, pls. ii & iii, fig. 10, n. spp.; descriptions and figures of varieties of *J. luridus*, C. Koch, and *J. londinensis*, Leach, pp. 38 & 39, pls. ii & iii, figg. 12 & 13; BROLEMAN, Ann. Soc. L. Lyon, xxix: *J. alemannicus*, n. sp., Heidelberg, p. 377; synopsis of the males of the *fallax* group, p. 379; *J. molleti*, p. 381, *frisioides*, p. 383, n. spp., Coimbra; VERHOEFF, Zool. Anz. xv.
- Hemipodiulus*, n. subg. of *Julus*, for *J. (H.) karschi*, n. sp. (? syn. *J. lusitanicus*, Karsch), Portugal; VERHOEFF, p. 380, Zool. Anz. xv.
- Spirostreptus malabaricus*, Gerv., Kortallum, pp. 158 & 159, *nigrolabiatus*, Newp., Madras, p. 159, pl. i, fig. 7, & pl. ii, fig. 5, *lankaensis*, Humb., Ceylon, p. 165, pl. ii, fig. 6; POCK, J. A. S. (Bombay) vii.
- S. asthenes, jerdoni*, Madras, p. 161, *centrurus*, p. 162, pl. ii, fig. 4, *insculptus*, Ceylon, p. 163, pl. i, fig. 8, POCK, J. A. S. (Bombay) vii; *S. bowringii*, Siam, p. 321, fig. 1, *perakensis*, Perak, p. 322, fig. 2, *patricii*, Batavia, fig. 3, *hosei*, p. 323, fig. 4, *everettii*, N. W. Borneo, p. 324, fig. 5, *dulitians*, Mt. Dulit, p. 325, fig. 6, *baluensis*, Mt. Kina Balu, p. 326, fig. 2, POCK, J. L. S. xxiv; *S. transvaalicus*, Pretoria, p. 181, fig., POCK, in Distant's Naturalist in Transvaal; *S. molleti*, St. Thomas (Gulf of Guinea), p. 193, pl. v, fig. 199, VERHOEFF, B. E. Z. xxxvii: n. spp.
- Odontopyge pretoriae*, Pretoria, p. 183, POCK, in Distant's Naturalist in Transvaal, n. sp.
- Spirobolus carnifex*, Fabr., syn. *ruficollis*, Newp., Madras, and Ceylon, p. 166, pl. ii, fig. 9, *goëssii*, Porath, syn. *dominicæ*, Pocock, Madras, p. 167; POCK, J. A. S. (Bombay) vii.
- S. thurstoni*, p. 167, pl. i, fig. 9, & pl. ii, fig. 8, *uroceros*, p. 169, pl. ii, fig. 7, Madras, *greeni*, pl. i, fig. 10, *longicornis*, pl. ii, fig. 11, p. 170, *longicollis*, p. 172, pl. ii, fig. 10, Ceylon, POCK, J. A. S. (Bombay) vii; *S. nannodes*, Tahiti, p. 186, LATZEL, Bull. Soc. Ent. Fr. xvii: n. spp.

## PROTOTRACHEATA.

BERNARD, H. M. The *Apodidæ*: a Morphological Study. Nature Series. London (Macmillan & Co.): 1892.

Section xvi of this work is set apart for the consideration of *Peripatus*.

DENDY, A. Further observations on the eggs of *Peripatus*. Austr. Ass. Adv. Sci. 1892, pp. 10-14.

—. On the Oviparity of *Peripatus leuckartii*. P. R. Soc. Vict. iv, pt. i, p. 31.

[DENDY, A.] Further Notes on the Oviparity of the larger Victorian *Peripatus*, generally known as *P. leuckartii*. P. Linn. Soc. N.S.W. vii, pt. ii, pp. 267-276 ; also Ann. N. H. (6) x, p. 136.

FLETCHER, J. J. A Viviparous Australian *Peripatus* (*P. leuckartii*, Sanger). P. Linn. Soc. N.S.W. vii, pp. 179-196.

GRABHAM, M., & COCKERELL, T. D. A. *Peripatus* rediscovered in Jamaica. Nature, xlv, p. 514.

*P. jamaicensis*. n. sp.

POCOCK, R. I. *Peripatus* from St. Vincent. T. c. p. 100.

Rediscovery of *P. juliformis*.



## XIII. INSECTA.

BY D. SHARP.

THE number of titles in this RECORD is 1026, the number for 1891 being 974.

During the year commencements have been made with two works that will, no doubt, be of much use when completed, viz., DALLA TORRE'S (198) Catalogue of *Hymenoptera* and KIRBY'S Catalogue of Moths (496). The latter work resembles its well-known predecessor, the "Synonymic Catalogue of Butterflies," except that it has not been thought necessary to give the synonymy of the European species in full: a decision that will, no doubt, be considered wise in view of the fact that this volume extends, even as it is, to nearly 1000 pages.

Two parts of the Entomology of GRANDIDIER'S work on Madagascar have been published. They both relate to *Hymenoptera*. One of them, by FOREL (287), is an excellent systematic treatise on the Ants: the other is by DE SAUSSURE (793); it treats of the rest of the *Aculeate Hymenoptera*, and proposes some modifications in the classification of the *Fossoria*. Some *Terebrantia* are figured on the plates, but are not alluded to in the letterpress.

Considerable progress has been made with the *Biologia Centrali-Americana*. But to us in Britain, perhaps, the most interesting faunistic work of the year is the first volume of HAMPSON'S Moths (384), forming part of the valuable "Fauna of British India," and published under the auspices of the Secretary of State for India. This volume is well executed, and will augment the good reputation of the series of which it forms a part. All entomologists will wish that the other orders of Insects could be dealt with in due course, but we fear that material sufficient for the purposes of such a work does not yet exist in collections.

The papers by FOREL (293) and WROUGHTON (1018) on the Ants of India should be noticed, not only on account of the amount of information they give on the subject, but also as showing what an extensive field of work for entomologists exists in India.

MEYRICK has given us another instalment (603) of his arrangement of *Lepidoptera*, on the basis of wing-neuration; and SPULER also gives us  
1892. [VOL. XXIX.]

(881) a study on this subject, but finds himself not quite able to agree with his predecessors in this field of enquiry.

HOFFBAUER has made a very interesting contribution (405) to a knowledge of the structure of the elytra of *Coleoptera*: this memoir, and RILEY'S study of *Pronuba* and *Yucca* (742), will, no doubt, be considered as amongst the most attractive of the papers enumerated in this RECORD. So much interest, too, attaches to the conclusions announced in GRASSI'S summary of his observations (359) on *Termitidæ*, that entomologists will wait for further details with some impatience.

The most interesting Insects described in 1892 are probably the two *Blattids* discovered by SIMON in caves in the Philippine Islands, and described by BOLIVAR (710) as forming the new genus he calls *Nocticola*.

HENKING (396) discusses a considerable variety of points in the early stages of development of the embryo, including the development in the parthogenetic eggs of some *Hymenoptera*; and we also record what we fear must be the last (355) of GRABER'S series of papers on the comparative embryology of Insects.

We owe thanks to TASCHENBERG for his apparently exhaustive treatise (915) on the history of the literature of Parthenogenesis.

The Recorder regrets he can form no opinion as to PORTSCHINSKY'S remarks on the biology of *Diptera* (698), and on the origin of striking coloration in *Lepidoptera* (700), owing to their being written entirely in the Russian language.

## I.—TITLES.\*

1. ABEILLE, E. DE PERRIN. Notices entomologiques. Rev. d'Ent. xi, pp. 62-67. [*Coleoptera*.]
2. ——. Deux nouvelles espèces de *Clérides*. Bull. Soc. Ent. Fr. lxi, p. ccxxxvi. [*Coleoptera*.]
3. ADELUNG, N. VON. Beiträge zur Kenntniss des tibialen Gehörapparates der *Locustiden*. Z. wiss. Zool. liv, pp. 316-349, pls. xiv & xv. [*Orthoptera*.]
4. ALPHERAKY, S. *Lepidoptera* nova a Gr. Grum-Grshimailo in Asia centrali novissime lecta. Hor. Ent. Ross. xxvi, pp. 444-459.  
———. [See also ROMANOFF (779).]
5. ALDRICH, J. M. New species of *Phora*. Canad. Ent. xxiv, pp. 142-146. [*Diptera*.]
6. ——. A new genus and species of *Tabanidæ*. Psyche, vi, p. 236. [*Diptera*.]

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

7. ALLARD, E. Collection d'insectes formée dans l'Indo-Chine par M. Pavie, Consul de France au Cambodge. *Coléoptères. Phytophages*. N. Arch. Mus. Paris (3) iii, pp. 229-234.
8. ALLUAUD, C. Deux nouvelles espèces de *Coléoptères*. Bull. Soc. Ent. Fr. lxi, pp. ccxxxviii & ccxxxix.
9. ANDERSON, E. Notes on some Victorian *Lepidoptera*. Vict. Nat. ix, pp. 80-93.  
Some interesting remarks on habits and variation.
10. ANDERSSON, J. Bidrag till Kännedomen om Nagelspinnarens (*Aglia tau*, L.) utvecklingshistoria. Ent. Tidskr. xiii, pp. 93-96. [*Lepidoptera*.]
11. ANDRÉ, E. Species des *Hymenoptères*. 41 Fasc. pp. 89-144, pls. iv, viii, & x.  
Continuation of *Chrysididæ*, by R. du Buysson.
12. —. Matériaux myrmécologiques. Rev. d'Ent. xi, pp. 45-56. [*Hymenoptera*.]
13. —. Voyage de M. Chaper à Borneo. Catalogue des Fourmis et description des espèces nouvelles. Mém. Soc. Zool. v, pp. 46-55. [*Hymenoptera*.]
14. ANGELL, G. W. J. Two new species of *Coleoptera*. Ent. News, iii, p. 84.
15. ARRIBALZAGA, F. L. *Dipterologia Argentina* (Continuación). An. Soc. Arg. xxxiii, pp. 51-59, 111-122, 188-200, 236-254, and xxxiv, pp. 33-46, 173-192, & 241-280.
16. ASHMEAD, W. H. The Insect collections in the Berlin Museum. P. E. Soc. Wash. ii, pp. 205-211.  
141,000 species of Hexapods.
17. —. Notes on the genus *Melittobia*. T. c. pp. 228-232. [*Hymenoptera*.]
18. —. On the discovery of the genus *Eunotus* in America. T. c. pp. 287 & 288. [*Hymenoptera*.]
- 18A. —. Notes on the genus *Enicocephalus*, Westwood, and description of a new species from Utah. T. c. pp. 328-333. [*Rhynchota*.]
19. —. Notes on the *Eucharids* found in the United States. T. c. pp. 354-358. [*Hymenoptera*.]
20. —. Discovery of the genus *Cratæpus*, Förster, in America, and the description of a new species. Canad. Ent. xxiv, p. 309. [*Hymenoptera*.]
21. —. Three new *Pambolids* from the United States. Psyche, vi, pp. 289 & 290. [*Hymenoptera*.]

22. [ASHMEAD, W. H.] Two new and remarkable *Ophionids*. Ent. News, iii, p. 105. [*Hymenoptera*.]
23. AURIVILLIUS, C. Nordens fjärrilar. Handbok i Sveriges, Norges, Danmarks och Finlands *Macrolepidoptera*. 4to, pp. lii & 277, 50 plates and 35 woodcuts. Stockholm, 1888-1891.  
He adopts three divisions for *Lepidoptera*, viz., Neolepidoptera, Mesolepidoptera, and Palæolepidoptera.
24. —. Verzeichniss einer vom Herrn Fritz Theorin aus Gabun und dem Gebiete des Camerunflusses heimgebrachten Schmetterlingsammlung. II. *Heterocera*. Ent. Tidskr. xiii, pp. 181-200. [*Lepidoptera*.]
25. —. Collection d'insectes formée dans l'Indo-Chine par M. Pavie, Consul de France au Cambodge. *Coléoptères, Curculionines*. N. Arch. Mus. Paris (3) iii, pp. 205-224.
26. —. Eine neue Palæarktische Eulengattung. Ent. Tidskr. xiii, p. 285. [*Lepidoptera*.]
27. —. Leddjurens synförmåga. *T. c.* pp. 171-180.  
Relates chiefly to Exner's views on vision.
28. —. Om slökörn-flugan (*Oscinis frit*, L.) ett gif-akt till sveriges Kornodlare. *T. c.* pp. 209-224. [*Diptera*.]
29. AUSTAUT, L. Deux *Sphingides nouveaux* de l'Asie orientale. Le Nat. 1892, pp. 68 & 69. [*Lepidoptera*.]
30. BAKER, G. T. B. Notes on *Lycæna* (recte *Thecla*) *rhymnus*, *tengstrœmii*, and *pretiosa*. Tr. Ent. Soc. 1892, pp. 27-31, pl. ii. [*Lepidoptera*.]
31. BALBI, E. Diagnosi e descrizioni di due nuove specie di *Coleotteri*. Riv. Ital. Sci. Nat. xii, pp. 49 & 50.
32. \*—. Contributione alla Fauna *coleotterologica* d'Europe. Cf. Wien. ent. Z. xi, p. 251.
33. BANKS, N. A synopsis, catalogue, and bibliography of the *Neuropteroid* Insects of Temperate North America. Tr. Am. Ent. Soc. xix, pp. 327-373.
34. BARRETT, C. G. The *Lepidoptera* of the British Islands. London, 8vo.  
Intended to include all the British *Lepidoptera*. Parts I-V have been at present published.
35. BATAILLON, E. Sur le déterminisme physiologique de la métamorphose chez le ver-à-soie. C.R. cxv, pp. 61-64.
36. BATES, H. W. Additions to the *Longicornia* of Mexico and Central America, with remarks on some of the previously-recorded species. By the late Henry Walter Bates, with an Introduction by Frederick DuCane Godman. Tr. Ent. Soc. 1892, pp. 143-183, pls. v-vii. [*Coleoptera*.]

37. [BATES, H. W.] *Coléoptères* du Bengale occidental. Seconde liste des *Carabidæ*. Ann. Ent. Belg. xxxvi, pp. 230-233.
38. —. Viaggio de Leonardo Fea in Birmania e regioni vicine. XLIV, List of the *Carabidæ*. Ann. Mus. Genov. (2) xii, pp. 267-428. [*Coleoptera*.]
39. —. The Naturalist on the River Amazons: reprint of the unabridged edition, with a memoir of the author by Edward Clodd. London, 8vo, 1892.
40. BATESON, W. On Variation in the Colour of Cocoons of *Eriogaster lanestris* and *Saturnia carpini*. Tr. Ent. Soc. 1892, pp. 45-52. [*Lepidoptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 469.
41. —. On Variation in the Colour of Cocoons, Pupæ and Larvæ: further experiments. T. c. pp. 205-214. [*Lepidoptera*.]
42. BATESON, W., & BRINDLEY, H. H. On some cases of Variation in Secondary Sexual Characters, statistically examined. P. Z. S. 1892, pp. 585-594. [*Coleoptera*, *Orthoptera*.]
43. BAUDI, F. Di una nuova specie del genere *Tritoma*, Geoffr. Nat. Sicil. xi, p. 121. [*Coleoptera*.]
44. BECKER, A. Neue Pflanzen- und Insektenentdeckungen in der Umgegend von Sarepta, und Zusammenstellung der Raupen und Käfer die nur von einer Pflanzenart, und zwei, drei, Pflanzenarten leben, die aber zu einer Familie gehören. Bull. Soc. Mosc. 1892, pp. 62-70.
45. BECKER, TH. Eine neue *Leptis* aus der Schweiz. Wien. ent. Z. xi, p. 23. [*Diptera*.]
46. BEDDARD, F. E. Animal Coloration: an account of the principal facts and theories relating to the colours and markings of animals. London, 8vo, 288 pp., iv pls.  
Includes much Entomology.
47. BEDEL, L. Synopsis des grands *Hydrophiles*. Rev. d'Ent. x, pp. 306-322. [*Coleoptera*.]
48. —. Description de deux *Coléoptères* hétéromères du nord de l'Afrique. Ann. Mus. Genov. (2) x, pp. 794 & 795.
49. —. Synopsis des *Chironitis*, *Onitis* et *Bubas* de la région méditerranéenne: extrait de la monographie des *Onitides* de G. van Lansberge. Abeille, xxvii, pp. 257-280. [*Coleoptera*.]
50. —. Revision des *Scarabæus* palæarctiques. T. c. pp. 281-288. [*Coleoptera*.]
51. —. Renseignements sur les mœurs et le développement des *Meloidæ*. T. c. pp. 235-250 & 304. [*Coleoptera*.]

52. BEHR, H. H. Some Biological Peculiarities of the *Phylloxera* and a Method for utilising them for the Protection of Vineyards. *Zoe*, ii, pp. 305-310.
53. BELON, M. J. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXVIII, *Lathridiidae*. *Ann. Mus. Genov.* (2) x, pp. 877-880. [*Coleoptera*.]
54. BENTON, F. How Far do Bees Fly? *Ins. Life*, iv, pp. 319-321. [*Hymenoptera*.]
55. BENZI, A. Contribuzione allo studio degli *Imenotteri* del Modenese e particolarmente delle Specie del Genere *Nomada*, con la descrizione d'una nuova Specie. *Atti Soc. Mod.* (3) xi, pp. 213-225.
56. BERG, C. Nova *Hemiptera*, faunarum Argentinae et Uruguayensis (Continuación.) *An. Soc. Arg.* xxxiii, pp. 5-11, 43-50, 65-72, 97-104, 151-165, and xxxiv, pp. 82-96, & 193-205.
57. —. *Æolus pyroblaptus*, un nuevo destructor del trigo. *T. c.* pp. 60-62. [*Coleoptera*.]
58. —. Canibalismo entre insectos. *Op. cit.* xxxiv, pp. 236-238.  
BERGENSTAMM, J. E. v. [See BRAUER & BERGENSTAMM (119).]
59. BERGER, R. Beiträge zum Melanismus der Schmetterlinge. *Soc. Ent.* vi, pp. 180, &c.  
States that melanism is much extending amongst *Lepidoptera* on the Continent of Europe.
60. BERGROTH, E. Ueber *Lasiopsis*, Er., und verwandte Gattungen. *Wien. ent. Z.* xi, pp. 98-100. [*Coleoptera*.]
61. —. Beitrag zur *Tipuliden*-Fauna der Schweiz. *MT. Ges. Bern.* 1890, pp. 131-138. [*Diptera*.]
62. —. Description d'un genre nouveau de la sous-famille des *Plataspidinae*. *Bull. Soc. Ent. Fr.* lxi, p. cclv. [*Rhynchota*.]
63. —. *Plataspidinae* quatuor novæ. *Wien. ent. Z.* xi, pp. 171-173. [*Rhynchota*.]
64. —. Notes on the Nearctic *Aradidae*. *P. E. Soc. Wash.* ii, pp. 332-337, and Additional note, pp. 337 & 338. [*Rhynchota*.]
65. —. *Aradidae* novæ. *Rev. d'Ent.* xi, pp. 259-261. [*Rhynchota*.]
66. —. *Aradidi* dell' isola di Engano raccolti dal Dott. Elio Modigliani. *Ann. Mus. Genov.* (2) xii, pp. 806 & 807. [*Rhynchota*.]
67. —. *Aradides* du Bengale boréal. *Ann. Ent. Belg.* xxxvi, pp. 503 & 504. [*Rhynchota*.]
68. —. *Rhynchota æthiopica*. *T. c.* pp. 160-162.

69. [BERGROTH, E.] Viaggio di Leonardo Fea in Birmania e regioni vicine. XLVII, Commentarius secundus de *Aradidis* in Burma et Tenasserim a L. Fea collectis. Ann. Mus. Genov. (2) xii, pp. 710-717. [*Rhynchota*.]
70. —. Nouvelle espèce du genre *Megymenum*. Ann. Ent. Belg. xxxvi, p. 504. [*Rhynchota*.]
71. —. On an Indian Ant-mimicking *Hemipteron*. Ent. M. M. xxviii, p. 107. [*Rhynchota*.]
72. —. A new genus of *Eustheninae*. T. c. p. 158. [*Rhynchota*.]
73. BERNARD, H. M. An endeavour to show that the tracheæ of the *Arthropoda* arose from setiparous sacs. Zool. Jahrb. Anat. v, pp. 511-524.
74. BERTHOUMIEU, V. Nouvelles espèces d'*Ichneumonides*. Rev. d'Ent. xi, pp. 37-44. [*Hymenoptera*.]
75. BEUTENMÜLLER, W. On the earlier stages of some species of North American Moths. Bull. Am. Mus. iv, pp. 65-70. [*Lepidoptera*.]
76. —. List of types of some species of *Lepidoptera*, described by Grote and Robinson, in the American Museum of Natural History. T. c. pp. 59-64.
77. —. Some notes on transformations of Australian *Lepidoptera*, made by the late HENRY EDWARDS, with notes and additions. T. c. pp. 71-74.
78. —. Notes on the transformations of some species of *Lepidoptera*. By HENRY EDWARDS and S. L. ELLIOT, edited with additions by. T. c. pp. 75-80.
79. BEZZI, M. Contribuzione alla fauna *Ditterologica* della provincia di Pavia. Parte seconda. Bull. Ent. Ital. xxiv, pp. 64-84 & 97-151.
80. —. Di alcuni *Ditteri* raccolti nel paese dei Somali dall' Ingegnere L. Bricchetti Robecchi. Ann. Mus. Genov. (2) xii, pp. 181-196.
81. BIDENKAP, O. Undersøgelser over *Diptera brachycera* i Jarlsberg og Laurvigs amt Sommeren 1891. Ent. Tidskr. xiii, pp. 225-246.
82. BIGNELL, G. C. A new species of *Cynipidæ*. Ent. M. M. xxviii, p. 176. [*Hymenoptera*.]
83. BIGOT, J. M. F. *Diptères* nouveaux ou peu connus. 37<sup>e</sup> partie. XLVI. *Bombyliidi*. Ann. Soc. Ent. Fr. lxi, pp. 321-376.
84. —. Catalogue of the *Diptera* of the Oriental region. Part II, J. A. S. B. lxi, pp. 135-178 ; Part III, t. c. pp. 178-236.
85. —. Descriptions de *Diptères* nouveaux. Mém. Soc. Zool. v, pp. 602-691.
86. —. Description de trois nouveaux *Diptères* de l'Inde. Bull. Soc. Z. Fr. 1892, pp. 210 & 211.

The locality is Mahé.

87. [BIGOT, J. M. F.] *Nova genera Dipterorum*. Wien. ent. Z. xi, pp. 161 & 162.
88. BINET, A. Les racines du nerf alaire chez les *Coléoptères*. C.R. cxiv, pp. 1130-1132.  
Summary in J. R. Micr. Soc. 1892, p. 471.
89. —. Sur la structure d'un ganglion nerveux d'Insecte. Bull. Soc. Ent. Fr. lxi, p. clxxii.  
— [See also HENNEGUY & BINET (399).]
90. BLACKBURN, T. Notes on Australian *Coleoptera*, with descriptions of new species. Part x. P. Linn. Soc. N.S.W. (2) vi, pp. 479-550.
91. —. Notes on Australian *Coleoptera*, with descriptions of new species. Part xi. *Op. cit.* vii, pp. 65-152.
92. —. Notes on Australian *Coleoptera*, with descriptions of new species. Part xii. *T. c.* pp. 283-300.
93. —. Further Notes on Australian *Coleoptera*, with descriptions of new genera and species. xi. Tr. R. Soc. S. Austr. xv, pp. 20-73.
94. —. Further Notes on Australian *Coleoptera*, with descriptions of new genera and species. xii. *T. c.* pp. 207-261.
95. —. Scientific Results of the Elder Exploring Expedition. *Coleoptera*. *Op. cit.* xvi, pp. 16-61.
96. BLAISDELL, F. E. Notes on *Histeridæ* observed in San Diego County. *Zoe*, iii, pp. 337-339. [*Coleoptera*.]
97. —. A New Species of *Coleoptera* from California. Ent. News, iii, p. 51.
98. —. New *Coleoptera* from California. *T. c.* pp. 241-243.
99. BLANDFORD, W. F. H. Insects injurious to *Coniferæ*. J. R. Horticult. Soc. xiv, pp. 1-29 (separate copy).
100. —. Sugar-cane Borers in the West Indies. Kew Bull. 1892, pp. 153-178, pl.
101. BLANCHARD, R. Sur les *Æstrides* américains dont la larve vit dans la peau de l'homme. Ann. Soc. Ent. Fr. lxi, pp. 109-154. [*Diptera*.]
102. —. Note additionnelle sur les *Æstrides* américains dont la larve vit dans la peau de l'homme. Bull. Soc. Ent. Fr. lxi, pp. ccix-ccxi. [*Diptera*.]
103. BLATCH, W. G., & HORNER, A. C. Description of a New Species of *Rhizophagus*. Ent. M. M. xxviii, p. 303. [*Coleoptera*.]
104. BLATCHLEY, W. S. Two New *Orthoptera* from Indiana. Canad. Ent. xxiv, pp. 26 & 27.
105. —. Some Indian *Acridiidae*. II. *T. c.* p. 28. [*Orthoptera*.]

106. [BLATCHLEY, W. S.] Entomologizing in Mexico. Ent. News, iii, pp. 111-114 & 131-136.
107. BLATHWAYT, L. *Forficula auricularia*. Int. J. Micr. (3) ii, pp. 7-16, pls. i & ii. [*Orthoptera*.]
108. BLATTER, P. Sur l'histologie des organes annexes de l'appareil mâle chez la *Periplaneta orientalis*. C.R. cxv, pp. 1332-1334.
109. BLOCHMANN, F. Ueber das Vorkommen von Bakterienähnlichen Gebilden in den Geweben und Eiern verschiedener Insekten. CB. Bakt. Parasit. xi, pp. 234-240.
110. BOLIVAR, J. La *Langosta migratoria* de Chile. Act. Soc. Chili, ii, pp. 196-199. [*Orthoptera*.]  
 —. [See also RAFFRAY & BOLIVAR (710).]
111. BORRIES, H. De Danske *Lophyrus*-Arter og deres udbredelse. Ent. Med. iii, pp. 97-124, pl. ii. [*Hymenoptera*.]
112. BOURGEOIS, J. *Lycides* nouveaux on peu connus du Musée civique de Gênes. Deuxième mémoire, deuxième partie. Sous-tribu des *Lycini* (genuini). Ann. Mus. Genov. (2) xii, pp. 495-516. [*Coleoptera*.]
113. —. Coléoptères du Bengale occidental. *Dascillides* et *Malacodermes*. Ann. Ent. Belg. xxxvi, pp. 234-238.
114. —. Descriptions de trois espèces nouvelles de *Lycides* de Borneo. Notes Leyd. Mus. xiv, pp. 39-42. [*Coleoptera*.]  
 —. [See also DISTANT (210).]
115. BRANCSIK, K. Beiträge zur Kenntniss Nossibé's und dessen Fauna nach Sendungen und Mittheilungen des Herrn P. Frey. Jahreshb. Ver. Trencsin. xiii, pp. 122-167.
116. BRAUER, F. Über die aus Afrika bekannt gewordenen *Æstriden* und insbesondere über zwei neue von Dr. Holub aus Südafrika mitgebrachte Larven aus dieser Gruppe. SB. Ak. Wien, ci, pp. 4-16, pl. i. [*Diptera*.]  
 Summary in J. R. Micr. Soc. 1892, p. 600.
117. —. Ueber das sogenannte Stillstandstadium in der Entwicklung der *Æstriden*-Larven. Verh. z.-b. Wien, xlii, pp. 79-84. [*Diptera*.]  
 Summary in J. R. Micr. Soc. 1892, p. 358.
118. —. Ansichten über die Gattung *Pachystylum*, Macq., und Rückblicke auf die in den Denkschriften der Kais. Akademie erschienenen "Vorarbeiten zu einer Monographie der *Muscaria*, &c., von Prof. Fr. Brauer u. J. Edl. v. Bergenstamm." SB. Ak. Wien, ci, pp. 593-607. [*Diptera*.]

119. BRAUER, F., & BERGENSTAMM, J. E. VON. Die Zweiflügler des Kaiserlichen Museums zu Wien. v. Vorarbeiten zu einer Monographie der *Muscaria schizometopa* (exclusive *Anthomyidæ*). Pars II. Denk. Ak. Wien, lviii, pp. 305-446.
120. BRENDÉL, E. On the *Pselaphid* genus *Trimium*. Tr. Am. Ent. Soc. xix, pp. 165-168. [*Coleoptera*.]
121. —. *Rhexidius*. Ent. News, iii, pp. 11-13. [*Coleoptera*.]
122. BRENSKE, E. Beitrag zur Kenntniss der Gattungen *Lepidiota* und *Leucopholis*. Berl. Ent. Zeit. xxxvii, pp. 33-62. [*Coleoptera*.]
123. —. Die Arten der *Coleopteren*-Gattung, *Brahmina*, Bl. T. c. pp. 79-124.
124. —. Neue Arten der *Coleopteren*-Gattung, *Holotrichia* (*Lachnosterna*). T. c. pp. 159-192.
125. —. Ueber einige neue Gattungen und Arten der *Melolonthiden*. Ent. Nachr. xviii, pp. 151-159. [*Coleoptera*.]  
BRINDLEY, H. H. [See BATESON & BRINDLEY (42).]
126. BRISCHKE, C. G. A. Einige neue, oder für Westpreussen neue, *Hymenopteren* und *Dipteren*. Schr. Ges. Danz. (n.s.) viii, pp. 19-22.
127. —. Bericht über eine Excursion ins Radaunethal bei Babenthal während des Juni 1890. T. c. pp. 23-56. [*Insecta*.]
128. BRISOUT, C. DE BARNEVILLE. Description d'une *Corticaria* nouvelle de France. Rev. d'Ent. xi, p. 68. [*Coleoptera*.]
129. BRODIE, W. Canadian Galls and their Occupants. Canad. Ent. xxiv, pp. 12-14.
130. —. Canadian Galls and their Occupants. *Eurosta solidaginis*, Fitch. T. c. pp. 137-139.
131. BROMILOW, F. Butterflies of the Riviera. A short Account of the *Rhopalocera* of the Maritime Alps. Nice, 1892, 115 pp., 8vo. [*Lepidoptera*.]
132. BRONGNIART, C. Monographie du genre *Palophus* (*Orthoptères* de la famille des *Phasmiens*). N. Arch. Mus. Paris (3) iii, pp. 193-204, pls. viii & ix.
133. —. Collection d'insectes formée dans l'Indo-Chine par M. Pavie, Consul de France au Cambodge. *Coléoptères*, *Longicornes*. T. c. pp. 237-254, pl. x.
134. —. Monographie du genre *Eumegalodon* (*Orthoptères* de la famille des *Locustides*). T. c. pp. 277-286, pl. xii.
135. BRUNER, L. Report upon Insect Depredations in Nebraska. Bull. Dep. Agric. Ent. xxvi, pp. 9-12.
136. BRUNER, L., COQUILLETT, D. W., & OSBORN, H. Reports on the Damage by destructive Locusts during the season of 1891. Bull. Dep. Agric. Ent. xxvii, pp. 1-64. [*Orthoptera*.]

137. BRUNNER, C. VON WATTENWYL. Notizen über die *Orthopteren*-Fauna Ceylon's. Ent. Nachr. xviii, pp. 337-340.
138. BRUNNER, C. VON WATTENWYL, & REDTENBACHER, J. On the *Orthoptera* of the Island of St. Vincent, West Indies. P. Z. S. 1892, pp. 196-220, pls. xv-xvii.  
With an introductory notice by D. SHARP.
139. BUCHENAU, F. Die "springenden Bohnen" aus Mexiko. Dritter Beitrag. Abh. Ver. Brem. xii, pp. 277-290.
140. BUGNION, E. Résumé des recherches de M. Jules Gonin sur la Métamorphose des *Lépidoptères*. MT. Schw. ent. Ges. viii, pp. 403-407.
141. BUTLER, A. G. On a collection of *Lepidoptera* from Sandakan, N. E. Borneo. P. Z. S. 1892, pp. 120-133, pl. vi.
142. —. On the genus *Hypocala*, a group of *Noctuid* Moths. Ann. N. H. (6) x, pp. 17-22. [*Lepidoptera*.]
143. —. Description of a new genus and species of African Moths. T. c. pp. 295 & 296. [*Lepidoptera*.]
144. —. On the *Noctuid* genera allied to *Hypatra* of Guenée. T. c. pp. 297-300. [*Lepidoptera*.]
145. —. Revision of the *Noctuid* genus *Melipotis*, Hub., with descriptions of two new species. T. c. pp. 315-327. [*Lepidoptera*.]
146. —. Description of a new Moth of the genus *Anaphe*, from Madagascar, with a note on the natural position of the genus. T. c. p. 398. [*Lepidoptera*.]
147. BUTLER, A. G., & ROTHSCHILD, W. On a new and also on a little-known species of *Pseudacraea* in the collection of the Hon. Walter Rothschild. Tr. Ent. Soc. 1892, pp. 201 & 202, pl. x. [*Lepidoptera*.]
148. BUYSSON, R. DU. Sur les glandes à venin des *Ichneumonides*. Rev. d'Ent. xi, pp. 257 & 258, pl. i. [*Hymenoptera*.]  
— [See also ANDRÉ (11).]
149. BUYSSON, R. DU, & MARSHALL, T. A. Voyage de M. E. Simon au Venezuela. *Hyménoptères*. Ann. Soc. Ent. Fr. lxi.
150. CALVERT, P. P. Preliminary notes on some African *Odonata*. Tr. Am. Ent. Soc. xix, pp. 161-164.
151. CAMERON, P. *Hymenoptera* orientalis; or contributions to a knowledge of the *Hymenoptera* of the Indian Zoological region: Part iv. Mem. Soc. Manch. (4) v, pp. 97-137, pl. i.
152. CANDÈZE, E. *Elatérides* recueillis en Birmanie en 1888, par M. L. Fea. 2<sup>e</sup> article. Ann. Mus. Genov. (2) x, pp. 771-793. [*Coleoptera*.]

153. [CANDEZE, E.] *Elatérides* recueillis par M. Modigliani dans l'île d'Engano en Mai et Juin 1891. *Op. cit.* xii, pp. 795-800. [*Coleoptera*.]
154. —. Viaggio di Lamberto Loria nella Papuasias orientale. vi. *Elatérides* recueillis par M. Loria en 1889-1891, dans la Nouvelle-Guinée méridionale et régions voisines. *T. c.* pp. 801-805. [*Coleoptera*.]
155. —, Deuxième note sur les *Elatérides* de Chota-Nagpore. *Ann. Ent. Belg.* xxxvi, pp. 480-495. [*Coleoptera*.]
156. —. Trois *Elatérides* nouveaux. *Notes Leyd. Mus.* xiv, pp. 9 & 10. [*Coleoptera*.]
157. CARLET, G. Sur le mode d'union des anneaux de l'abdomen (articulation en zigzag) chez les *Hyménoptères*. *C.R.* cxiv, p. 766.  
Summary in *J. R. Micr. Soc.* 1892, p. 357.
158. CARLINI, A. DE. *Rincoti* raccolti nel paese dei Somali dall' Ing. Bricchetti-Robecchi, con note su altri dell' Africa centrale. *Ann. Mus. Genov.* (2) xii, pp. 527-538.
159. CARPENTER, G. H. Reports on the Zoological collections made in Torres Straits by Prof. A. C. Haddon. *Rhynchota* from Murray island and Mabuiag. *P. R. Dublin Soc. (n.s.)* vii, pp. 137-146, pls. xii & xiii.
160. CARPENTIER, L. Observations sur les parasites du *Liparis salicis*, Dup. *Bull. Soc. L. Nord. Fr.* x, pp. 35-40. [*Lepidoptera*, *Hymenoptera*.]
161. CASEY, T. L. *Coleopterological Notices*. III. *Ann. N. York Ac.* vi, pp. 9-214.  
This is in large part devoted to a revision of the N. American *Cistelidæ*.
162. —. *Coleopterological Notices*. IV. *T. c.* pp. 359-712.  
This part is devoted to *Rhynchophora*.
163. CHAMPION, G. C. Note on *Pentaria badia*, Rosh., with description of a second species from the Pyrénées-orientales. *Ent. M. M.* xxviii, p. 108. [*Coleoptera*.]  
— [See also GODMAN & SALVIN (347).]
164. CHAPMAN, T. A. The life-history of *Lampronia capitella*. *Ent. M. M.* xxviii, pp. 297-300. [*Lepidoptera*.]
165. CHATIN, J. Sur l'origine et la formation du revêtement chitineux chez les larves de *Libellules*. *C.R.* cxiv, pp. 1135-1138.  
Summary in *J. R. Micr. Soc.* 1892, p. 473.
166. —. Sur le processus général de la cuticularisation tégumentaire chez les larves de *Libellules*. *Bull. Soc. Philom.* (8) iv, pp. 105 & 106.

167. CHAUMAT, H. L'œuvre scientifique du Dr. G. Carlet. Bull. Soc. Isère (4) i, pp. 403-451.  
Includes abstracts of each of his memoirs.
168. CHITTENDEN, F. H. Notes on the Food Habits of some Species of *Chrysomelidæ*. P. E. Soc. Wash. ii, pp. 261-267. [*Coleoptera*.]
169. CHUBAUT, —. Un nouveau *Rhipidius* du Mont Ventoux. Mem. Ac. Vaucluse, pp. 213-221, pl. [*Coleoptera*.]
170. CHOLODKOVSKY, N. On the Morphology and Phylogeny of Insects. Ann. N. H. (6) x, pp. 429-451.  
A translation of a portion of the paper alluded to last year in Zool. Rec. Ins. Titles (145).
171. —. Zur Kenntniss der männlichen Geschlechtsorgane der *Dipteren*. Zool. Anz. xv, pp. 178-180.  
Translation in Ann. N. H. (6) x, pp. 268-270. Summary in J. R. Micr. Soc. 1892, p. 471.
172. —. Zur Kenntniss der Coniferen-Laüse. T. c. pp. 66-70 & 73-78. [*Rhynchota*.]  
Summary in J. R. Micr. Soc. 1892, p. 600.
173. —. Embrional'noe razvitiye prussaka (*Phyllodromia germanica*). Trudui St. Petersburg Est. xxii, pp. 39-223, pls. i-vi. [*Orthoptera*.]  
Apparently an important paper, but it is entirely in Russian.
174. CHRETIEN, P. Les chenilles de l'Artichaut. Le Nat. 1892, p. 132. [*Lepidoptera*.]
175. CHRISTOPH, H. *Arctia turbans* eine neue sibirische Art. Hor. Ent. Ross. xxvi, p. 460. [*Lepidoptera*.]
176. COBELLI, R. Quattro nuove specie di *Imenotteri*. Verh. z.-b. Wien, xlii, pp. 67-72.
177. COCKERELL, T. D. A. The Sugar-cane Borer. Bull. Botan. dept. Jamaica, No. 30, 1892. [*Lepidoptera*.]
178. —. *Coccidæ*, or Scale Insects. Op. cit. No. 36, pp. 5-9.
179. —. Museum Notes. J. Inst. Jamaica, i, pp. 134-137.  
One of the descriptions of *Coccidæ* is by MORGAN.
180. —. A *Cecid* bred from *Coccidæ*. Ent. xxv, pp. 180 & 181. [*Diptera*.]
181. COMSTOCK, J. H. The Descent of the *Lepidoptera*. An application of the theory of Natural Selection to Taxonomy. P. Am. Ass. xli, pp. 199-201.
182. CONSTANT, A. Liste annotée des *Lépidoptères* envoyés à la Société d'histoire naturelle d'Autun. Bull. Soc. Autun, v, pp. 15-83.  
Includes notes on food-plants and localities, chiefly of *Micros*.
183. COOK, A. J. Report of Apicultural Experiments in 1891. Bull. Dep. Agric. Ent. xxvi, pp. 83-92. [*Hymenoptera*.]

184. COQUILLET, D. W. Report on the Scale Insects of California. *T. c.* pp. 13-35. [*Coccidæ*.]
185. —. Revision of the Species of *Anthrax* from America North of Mexico. *Tr. Am. Ent. Soc.* xix, pp. 168-187. [*Diptera*.]
186. —. Revision of the *Bombylid* genus *Epacmus* (*Leptochilus*). *Canad. Ent.* xxiv, pp. 9-11. [*Diptera*.]
187. —. Notes and Descriptions of *Bombylidæ*. *T. c.* pp. 123-126. [*Diptera*.]
188. —. A New Genus of *Diptera* allied to *Rhaphiomidas*. *T. c.* p. 314.
189. —. The *Dipterous* parasite of *Melanoplus devastator* in California. *Ins. Life*, v, pp. 22-24.
190. —. A New *Dalmanina* from California. *Ent. News*, iii, p. 150. [*Diptera*.]
- [See also BRUNER, COQUILLET, & OSBORN (136).]
191. COSMOVICI, L. C. Contributions à l'étude de la faune entomologique Roumaine. *Lépidoptères*. *Le Nat.* 1892, pp. 254-256, 264, & 280.
192. COSTE, —. On Insect Colours. *Nature*, xlv, pp. 513-517, 541, & 542.
- Cf.* HOPKINS, *t. c.* p. 581 ; also COSTE & MELDOLA, *t. c.* p. 605.
193. COUCKE, E. Les *Brachymères* de Belgique et des régions voisines. *Ann. Ent. Belg.* xxxvi, pp. 69-79. [*Coleoptera*.]
194. CROISSANDEAU, J. Description d'une nouvelle espèce de *Thorectes*. *Bull. Soc. Ent. Fr.* lxi, p. ccxxi. [*Coleoptera*.]
195. CUNNINGHAM, D. D. On the Phenomena of Fertilization in *Ficus roxburghii*, Wall. *Ann. R. Botan. Gard. Calcutta*, i, App. pp. 11-51, pls. i-v. [*Hymenoptera*.]
196. \*DALE, C. W. The *Lepidoptera* of Dorsetshire. A Catalogue of Butterflies and Moths found in the County of Dorset. Second edition. Dorchester: 76 pp.
197. DALLA TORRE, K. W. V. *Hymenopterologische Notizen*. *Wien. ent. Z.* xi, pp. 89-93.

These notices consist chiefly of new names proposed for synonymical reasons. In consideration of the current publication of the author's Catalogue of *Hymenoptera*, it is not necessary to give these new specific names in our pages.

198. DALLA TORRE, C. G. *Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus*. Vol. VI. *Chrysididæ* (*Tubulifera*). Leipzig : 1892, 8vo, pp. viii & 118.

199. DESBROCHERS, J. DES LOGES. Étude sur les *Scolytus* d'Europe. Frelon, i, pp. 10-17. [*Coleoptera*.]
200. —. Essai d'une Révision des *Hypomeces* et genres voisins. *Curculionides* du groupe des *Tanymécides*. *T. c.* pp. 45-51. [*Coleoptera*.]
201. —. Etudes sur les *Curculionides* d'Europe et des pays limitrophes. *T. c.* pp. 52-107. [*Coleoptera*.]
202. —. Diagnoses d'espèces inédites du genre *Apion*. *T. c.* pp. 107 & 108. [*Coleoptera*.]
203. —. Description d'un *Brenthide* nouveau des Nouvelles-Hébrides. *T. c.* p. 109. [*Coleoptera*.]
204. —. Monographie des *Cassida* de France, suivie d'observations sur le classement des espèces de ce genre au Catalogus *Coleopterorum* Europæ, Caucasi et Armeniæ rossicæ. *T. c.* pp. 1-48 (sep. pag.).  
See also *op. cit.* ii, pp. 82-87.
205. —. Espèces inédites de *Curculionides* de l'ancien monde. *T. c.* i, pp. 110-123 ; ii, pp. 1-12 & 88-100. [*Coleoptera*.]
206. —. Essai d'une révision des espèces du genre *Hyphantus*, *Curculionide* de la tribu des *Otiorhynchides*. *T. c.* ii, pp. 12-19. [*Coleoptera*.]
207. —. Révision des *Baridiides* d'Europe et des Contrées limitrophes. *T. c.* pp. 19-69. [*Coleoptera*.]
208. —. Tableaux dichotomiques des *Curculionides* *Cossonides* d'Europe et des pays limitrophes. *T. c.* pp. 69-82. [*Curculionidæ*.]
209. —. Revision des *Balaninides* et des *Anthonomides* d'Europe et des confins de la Méditerranée, en Afrique et en Asie. *T. c.* pp. 101- (incomplete). [*Coleoptera*.]
210. DISTANT, W. L. A Naturalist in the Transvaal. London : 1892, 8vo, pp. xvi & 277, pls. v.  
Pp. 187-262 are devoted to lists of Insects and descriptions of new species ; these are by the author himself and BOURGEOIS, DURRANT, GAHAN, GORHAM, JACOBY, and DE SAUSSURE. There are also many entomological observations in the narrative.
211. —. A monograph of Oriental *Cicadidæ*. Parts v-vii, pp. ix & 97-158, pls. x-xv.  
These parts complete the work.
212. —. Contribution to a knowledge of the *Homopterous* family *Fulgoridæ*. Tr. Ent. Soc. 1892, pp. 275-286, pl. xiii. [*Rhynchota*.]
213. —. On some undescribed *Cicadidæ*, with synonymical notes. Ann. N. H. (6) ix, pp. 313-327. [*Rhynchota*.]
214. —. On some undescribed *Cicadidæ*, with synonymical notes. *Op. cit.* x, pp. 54-67. [*Rhynchota*.]

215. [DISTANT, W. L.] Description of a new species of the *Homopterous* family *Cicadida*. *T. c.* p. 406.
216. —. Contributions to a knowledge of the Entomology of the Transvaal. *T. c.* pp. 407 & 408. [*Coleoptera*, *Lepidoptera*.]
217. —. Descriptions of four new species of *Scutellerinæ*. *Ent.* xxv, Supp. pp. 95 & 96. [*Rhynchota*.]
218. —. Notes on Ethiopian *Rhynchota*. *Ent. M. M.* xxviii, pp. 187 & 188.
- [See also GODMAN & SALVIN (347).]
219. DODERO, A. Res ligusticæ. XVI. Nota sul genere *Trogaster*, Sharp. *Ann. Mus. Genov.* (2) x, pp. 665-668. [*Coleoptera*.]
220. DOGNIN, P. Description de *Lépidoptères* nouveaux. *Le Nat.* 1892, pp. 16, &c., &c.
221. DOHRN, C. A. *Belonuchus nulli-cedo*. *S. E. Z.* liii, p. 74. [*Coleoptera*.]
222. DOHRN, H. Neue und ungenügend bekannte *Phaneropteriden* aus dem Malayischen Faunengebiete. *T. c.* pp. 63-73. [*Orthoptera*.]
223. DORAN, E. W. The evolution of heat by *Silvanus cassiæ*. *P. E. Soc. Wash.* ii, pp. 325-327. [*Coleoptera*.]
224. DOUGLAS, J. W. Notes on some British and Exotic *Coccidæ*. *Ent. M. M.* xxviii, p. 105, &c.
- [See also MORGAN (625).]
225. DRUCE, H. Descriptions of new species of *Eratina* from Tropical America. *Ann. N. H.* (6) ix, pp. 97-107. [*Lepidoptera*.]
226. —. Description of a new genus and some new species of *Heterocera* from Central America. *T. c.* pp. 275-279. [*Lepidoptera*.]
- [See also GODMAN & SALVIN (347).]
227. DRUCE, H. H. A List of the *Lycanidæ* of the South Pacific Islands, east of the Solomon group, with descriptions of several new species. *P. Z. S.* 1892, pp. 434-446, pl. xxvii. [*Lepidoptera*.]
228. DUFOUR, J. Note sur le *Botrytis tenella* et son emploi pour la destruction des Vers blancs. *Bull. Soc. Vaud.* xxviii, pp. 49-56.
229. DUGÈS, A. *Acanthia inodora*. *Naturelleza* (2) ii, p. 169. [*Rhynchota*.]
- DURRANT, J. H. [See DISTANT (210).]
230. DUVIVIER, A. Melanges entomologiques. x & xi. Diagnoses de *Coléoptères* nouveaux du Congo. *Ann. Ent. Belg.* xxxvi, pp. 56-60 & 163-167.

231. [Duvivier, A.] Contributions à la faune entomologique de l'Afrique centrale. II. Note sur les *Coléoptères* des vallées de l'Itimbiri-rubri et de l'Uelle (régions du Haut-Congo) recueillis en 1890 par MM. Joseph Duvivier et Milz. *T. c.* pp. 257-383.  
A catalogue, with descriptions of several species recently described, as well as some new.
232. —. Les *Phytophages* du Chota-Nagpore. 2 Note. *T. c.* pp. 396-449. [*Coleoptera*.]
233. DUZEE, E. P. VAN. New North-American *Homoptera*.—IV. *Canad. Ent.* xxiv, pp. 113-116. [*Rhynchota*.]
234. —. New North-American *Homoptera*.—V. *T. c.* pp. 266-268. [*Rhynchota*.]
235. —. A revision of the N. American species of *Phlepsius*. *Tr. Am. Ent. Soc.* xix, pp. 63-82, pl. i. [*Rhynchota*.]
236. —. A synoptical arrangement of the genera of the N. American *Jassidae*, with some descriptions of new species. *T. c.* pp. 295-307. [*Rhynchota*.]
237. —. The North American *Jassidae* allied to *Thamnotettix*. *Psyche*, vi, pp. 305-310. [*Rhynchota*.]
238. DYAR, H. G. A new *Gluphisia* from the Pacific coast. *Ent. News*, iii, p. 168. [*Lepidoptera*.]
239. —. New forms of *Ichthyura*. *Canad. Ent.* xxiv, p. 179. [*Lepidoptera*.]
240. —. Notes on *Cerura*, with descriptions of new species. *Psyche*, vi, pp. 290-292. [*Lepidoptera*.]
241. EATON, A. E. New species of *Ephemeridæ* from the Tenasserim Valley. *Tr. Ent. Soc.* 1892, pp. 185-190. [*Neuroptera*.]
242. —. Notes on some native *Ephemeridæ* in the Indian Museum, Calcutta. *J. A. S. B.* lx, pp. 406-413. [*Neuroptera*.]
243. —. On two new and some other Japanese species of *Ephemeridæ*. *Ent. M. M.* xxviii, pp. 302 & 303.  
— [See also GODMAN & SALVIN (347).]
244. EBERLI, J. Untersuchungen am Verdauungstraktus von *Gryllotalpa vulgaris*. *Viert. Ges. Zürich*, xxxvii, pp. 167-212. [*Orthoptera*.]  
Summary in *J. R. Micr. Soc.* 1892, p. 781.
245. ECKSTEIN, K. Der Baumweissling, *Aporia crategi*, Hb. *Zool. Jahrb. (Syst.)* vi, pp. 230-240. [*Lepidoptera*.]  
Summary in *J. R. Micr. Soc.* 1892, p. 470.  
EDWARDS, H. [See BEUTENMÜLLER (77, 78).]
246. EDWARDS, W. H. The Butterflies of North America. Part XIII. [*Lepidoptera*.]
1892. [VOL. XXIX.]

247. [EDWARDS, W. H.] Miscellaneous Notes on Butterflies, Larvæ, &c. Canad. Ent. xxiv, pp. 49-56 & 105-111. [*Lepidoptera*.]  
ELLIOT, S. [the late]. [See BEUTENMÜLLER (78).]
248. ELWES, H. J. On Butterflies collected by Mr. W. Doherty in the Naga and Karen Hills and in Perak. P. Z. S. 1892, pp. 617-664, pls. xliii & xliv. [*Lepidoptera*.]
249. EMERY, C. Le formiche dell'ambra siciliana nel museo mineralogico dell' Università di Bologna. Mem. Acc. Bologn. (5) i, pp. 141-165, pls. i-iii. [*Hymenoptera*.]
250. —. Revision critique des Fourmis de la Tunisie. Exploration scientifique de la Tunisie. *Hymenoptères*, pp. i, ii, & 1-21.
251. —. Origines de la faune actuelle des Fourmis de l'Europe. Bull. Soc. Vaud. xxvii, pp. 258-260. [*Hymenoptera*.]
252. —. Sopra alcune Formiche raccolte dall' Ingegnere L. Bricchetti Robecchi nel paese dei Somali. Ann. Mus. Genov. (2) xii, pp. 110-122. [*Hymenoptera*.]
253. —. *Crematogaster striatulus*, n. sp. Bull. Soc. Ent. Fr. lxi, p. liii. [*Hymenoptera*.]
254. —. Diagnoses de cinq nouveaux genres de *Formicides*. T. c. pp. cclxxv-cclxxvii. [*Hymenoptera*.]
255. EPPELSHEIM, E. Neue *Staphylinen* der österreichisch-ungarischen Monarchie und der angrenzenden Länder. Wien. ent. Z. xi, pp. 289-297. [*Coleoptera*.]
256. —. Zur *Staphylinen*-fauna Turkestan's. Deutsche e. Z. 1892, pp. 321-346. [*Coleoptera*.]  
ERSCHOFF, N. [See ROMANOFF (779).]
257. ESCHERICH, C. Die biologische Bedeutung der "Genitalanhänge" der Insekten. (Ein Beitrag zur Bastardfrage.) Verh. z.-b. Wien, xlii, pp. 225-240, pl. iv.
258. ESCHERICH, K. Ueber die Gesetzmässigkeit im abändern der Zeichnung bei Insecten. Beitrag zur Theorie von der Entwicklung aus constitutionellen Ursachen. Deutsche e. Z. 1892, pp. 113-130, pl. i. [*Coleoptera*.]
- Deals with variation in *Zonabris*.
259. —. Studien über die *Cleriden*-Gattung *Trichodes*, Herbst. Wien. ent. Z. xi, pp. 226-230. [*Coleoptera*.]
260. EVERTS, E. Tabellarisch overzicht der in Nederland waargenomen *Donaciini*. Tijdschr. Ent. xxxv, pp. 31-58. [*Coleoptera*.]
261. FAIRMAIRE, L. Voyage de M. E. Simon au Venezuela. *Coléoptères Hétéromères*. Ann. Soc. Ent. Fr. lxi, pp. 77-98.
262. —. *Coléoptères* d'Obock. Troisième partie. Rev. d'Ent. xi, pp. 77-126.

263. [FAIRMAIRE, L.] Descriptions de *Coléoptères* des environs d'Akbès (Syrie). Ann. Ent. Belg. xxxvi, pp. 144-159.
264. —. Descriptions de quelques *Coléoptères* Argentins. *T. c.* pp. 242-253.
265. —. Nouveau genre de *Coléoptère Hétéromère*. Bull. Soc. Ent. Fr. lxi, p. vii.
266. —. Nouveau genre de *Cerambycide*. *T. c.* p. xxi. [*Coleoptera*.]
267. —. Descriptions de deux *Coléoptères* nouveaux. *T. c.* p. cix.
268. —. Descriptions de quelques *Coléoptères* de Turkestan. *T. c.* pp. cxxi-cxxiv.
269. —. Descriptions de quelques *Coléoptères* de Madagascar. *T. c.* p. clxviii.
270. —. Trois *Coléoptères* nouveaux. *T. c.* p. cli.
271. —. Descriptions de quelques *Coléoptères* nouveaux de Turkestan. *T. c.* p. clii.
272. \*FAUCONNET, L. Faune analytique des *Coléoptères* de France. Autun, 8vo, 528 pp. Cf. Rev. d'Ent. xi, p. 59.
273. FAUST, J. Die *Anchoniden*-Gruppe. Deutsche e. Z. 1892, pp. 17-60. [*Coleoptera*.]
274. —. Einige neue *Curculioniden*. *T. c.* pp. 60-64. [*Coleoptera*.]
275. —. Reise von E. Simon in Venezuela, *Curculionide*. S. E. Z. liii, pp. 1-43. *Coleoptera*.
276. —. Notizen über Rüsselkäfer. *T. c.* pp. 44-52. [*Coleoptera*.]
277. —. Fünf neue *Curculioniden* von Australien. *T. c.* pp. 179-184. [*Coleoptera*.]
278. —. *Curculioniden* aus dem Malayischen Archipel. *T. c.* pp. 184-227. [*Coleoptera*.]  
— [See also HEYDEN (402).]
279. FENK, C. Mittheilungen über das Auftreten des Nonnenspinners (*Liparis monacha*) in den Jahren 1890 und 1891 in Süddeutschland und der Ostschweiz. Ber. St. Gall. Ges. 1890-91, pp. 289-306. [*Lepidoptera*.]
280. FERNALD, C. H. New North American *Micro-Lepidoptera*. Canad. Ent. xxiv, pp. 121, 122, & 178.
281. FERRARI, P. M. Res ligusticæ. XIX. Elenco dei *Rincoti* ligustici (*Emitteri* e *Cicadarii*) fin ora osservati. Ann. Mus. Genov. (2) xii, pp. 548-576.
282. FINOT, A. *Orthoptère* nouveau du midi de la France. Bull. Soc. Ent. Fr. lxi, p. xxxv.

283. FITZ-GIBBON, M. Use of the Hairs of *Acronycta alni*. Ent. xxv, pp. 39 & 40. [*Lepidoptera*.]
284. FLEISCHER, A. *Anthaxia semilimbata*, n. sp. Wien. ent. Z. xi, p. 209. [*Coleoptera*.]
285. FLEUTIAUX, E. Note sur les *Physodactylini*. Ann. Soc. Ent. Fr. lxi, pp. 403-412, pl. viii. [*Coleoptera*.]
286. FORBES, S. A. Bacteria normal to Digestive Organs of *Hemiptera*. Bull. Illinois Lab. iv, pp. 1-6.
287. FOREL, A. Histoire physique, naturelle et politique de Madagascar, publiée par Alfred Grandidier. Volume xx, Histoire Naturelle des *Hyménoptères*. Deuxième partie. Les *Formicides*. Paris, 1891, pp. v & 243, pls. i-v.
288. —. Die Nester der Ameisen. Neujahrsbl. Ges. Zurich, xcv, pp. 1-36, pl. [*Hyménoptera*.]
289. —. Die Ameisen fauna Bulgariens (nebst biologischen Beobachtungen). Verh. z.-b. Wien, xlii, pp. 305-318, pl. v. [*Hyménoptera*.]
290. —. Notes myrmécologiques. Ann. Ent. Belg. xxxvi, pp. 38-43. [*Hyménoptera*.]
291. —. Quelques Fourmis de la faune méditerranéenne. T. c. pp. 452-457. [*Hyménoptera*.]
292. —. Liste der aus Somaliland von Hrn. Prof. Dr. Conr. Keller aus der Expedition des Prinzen Ruspoli im August und September 1891, zurückgebrachten Ameisen. Mt. Schw. ent. Ges. viii, pp. 349-354. [*Hyménoptera*.]
293. —. Les *Formicides* de l'empire des Indes et de Ceylan. Part I. J. Bomb. Soc. vii, pp. 219-245, pl. a. [*Hyménoptera*.]
294. —. Die Ameisen Neu-Seelands. Mt. Schw. ent. Ges. viii, pp. 331-343. [*Hyménoptera*.]
295. —. *Attini* und *Cryptocerini*: Zwei neue *Apterostigma*-Arten. T. c. pp. 344-349. [*Hyménoptera*.]
296. —. Le mâle des *Cardiocondyla* et la reproduction consanguine perpétuée. Ann. Ent. Belg. xxxvi, pp. 458-461. [*Hyménoptera*.]
297. —. Hermaphrodite de *Azteca instabilis*. Bull. Soc. Vaud. xxviii, pp. 268-270, pl. xvi. [*Hyménoptera*.]
- [See also KELLER (475).]
298. FOX, W. J. Report on the *Hyménoptera* collected in West Greenland. P. Ac. Philad. 1892, pp. 133-135.
299. —. The North American species of *Ceropaes*. Tr. Am. Ent. Soc. xix, pp. 49-63. [*Hyménoptera*.]

300. [FOX, W. J.] Monograph of the North American species of *Tachytes*. *T. c.* pp. 234-252, pl. xi. [*Hymenoptera*.]
301. —. The North American *Pemphredonidæ*. *T. c.* pp. 307-326. [*Hymenoptera*.]
302. —. New North American species of *Gorytes*. *Canad. Ent.* xxiv, pp. 149-153. [*Hymenoptera*.]
303. —. Synopsis of the North American species of *Astatus*, Latr. *T. c.* pp. 232-235. [*Hymenoptera*.]
304. —. *Hymenopterological* notes. *Ent. News*, iii, pp. 9, 10, & 29.
305. —. Description of Four new species of Fossorial *Hymenoptera* from California. *T. c.* pp. 170-172.
306. —. Description of a new solitary Wasp. *T. c.* p. 197. [*Hymenoptera*.]
307. FREY-GESSNER, E. Les Bourdons du Valais. *Bull. Soc. Murith.* xiii, pp. 32-36. [*Hymenoptera*.]
308. —. Tables analytiques pour la détermination des *Hymenoptères* du Valais. *T. c.* pp. 37-48, pls. i, ii; and *op. cit.* xvi, pp. 43-112, pl. iii.
309. FRIVALDSZKY, J. *Coleoptera* in expeditione D. Comitum Belæ Széchenyi in China, præcipue boreali, a Dominis Gustavo Kreitner et Ludovico Lóczy anno 1879 collecta. Pars secunda. *Term. füzetek*, xv, pp. 114-125.
310. —. *Coleoptera* duo nova ex Hungaria. *T. c.* pp. 132 & 133.
311. FROGGATT, W. W. Notes on Australian *Cynipidæ*, with descriptions of several new species. *P. Linn. Soc. N.S.W.* (2) vii, pp. 152-156. [*Hymenoptera*.]
312. —. Catalogue of the described *Hymenoptera* of Australia: Part II. *T. c.* pp. 205-248.
313. FUCHS, A. *Macrolepidopteren* der Loreley-Gegend. Dritte Besprechung. *JB. nass. Ver.* xlv, pp. 83-106.
314. FYLES, T. W. Further notes on *Gelechia gallædiplopappi*, and description of a new species of *Bracon*. *Canad. Ent.* xxiv, pp. 34 & 35. [*Hymenoptera*.]
315. GAHAN, C. J. Additions to the *Longicornia* of Mexico and Central America, with notes on some previously recorded species. *Tr. E. Soc.* 1892, pp. 255-274, pl. xii. [*Coleoptera*.]
316. —. Notes on *Longicorn Coleoptera* of the group *Cerambycina*, with descriptions of new genera and species. *Ann. N. H.* (6) ix, pp. 19-32.  
— [See also DISTANT (210) and GORHAM & GAHAN (353).]

317. GANGLBAUER, L. Ein neuer *Anophthalmus* aus der Herzegowina. Wien. ent. Z. xi, p. 233. [*Coleoptera.*]
318. —. Ein neues *Bembidium* aus den Alpes maritimes. T. c. p. 314. [*Coleoptera.*]
319. —. Zwei neue *Boreaphilinen*. Soc. Ent. vii, p. 17. [*Coleoptera.*]
320. \*GASPERINI, R. *Tenthredinidum* species nova. Prilog Fauni dalmatinskih Pauka. [*Hymenoptera.*] Cf. Wien. ent. Z. xi, p. 232.
321. GERMAIN, P. Trois mois dans la vallée du Sipotuba (Province de Matto-Grosso, Brésil). Act. Soc. Chili, i, pp. 53-65.
322. —. Notes sur les *Coléoptères* du Chili. Renseignements et observations; descriptions d'espèces nouvelles; rectifications; indications de synonymie. Act. Soc. Chili, ii, pp. 241-261.
- GERHARDT, J. [See LETZNER (551).]
323. GERSTAECKER, A. Bestimmung der von Herrn Dr. F. Stuhlmann in Ost-Afrika gesammelten *Hemiptera*. JB. Hamb. Anst. ix (2) pp. 45-58.
324. GESTRO, R. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXIII. Sul genere *Arctolamia*. Ann. Mus. Genov. (2) x, pp. 221-224. [*Coleoptera.*]
325. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXIX. Enumerazione delle *Hispidae*. T. c. pp. 225-268. [*Coleoptera.*]
326. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXIV. Materiali per lo studio del genere *Ichthyurus*. T. c. pp. 555-594. [*Coleoptera.*]
327. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXVII. Enumerazione delle *Cetonie*. T. c. pp. 835-876, pl. ii. [*Coleoptera.*]
328. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XL. Contribuzione allo studio degli insetti termitofili. T. c. pp. 903-907. [*Coleoptera.*]
329. —. Appendice ai materiali per lo studio del genere *Ichthyurus*. T. c. pp. 1022-1048. [*Coleoptera.*]
330. —. Appunti sul genere *Omophron*. T. c. pp. 961-964. [*Coleoptera.*]
331. —. Viaggio di Lamberto Loria nella Papuasias orientale. VI. *Hispidae*. T. c. pp. 1015-1021. [*Coleoptera.*]
332. —. Nuovi materiali per lo studio degli *Anophthalmus* italiani. Op. cit. xii, pp. 79-85. [*Coleoptera.*]
333. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLVI. Cenno sui *Paussidi*. T. c. pp. 705-709. [*Coleoptera.*]

334. [GESTRO, R.] Di alcuni *Coleotteri* raccolti nel paese dei Somali dall' Ing. L. Bricchetti Robecchi. *T. c.* pp. 747-790.
335. —. Sopra due *Hispidae* di Engano raccolte dal Dott. Elio Modigliani. *T. c.* pp. 791-794. [*Coleoptera*.]
336. GIARD, A. Sur un *Diptère Stratyomide* (*Beris vallata*) imitant un *Tenthède* (*Athalia annulata* Fab.) C.R. Soc. Biol. (n.s.) iv, pp. 43-45.
337. —. Sur un *Hémiptère Hétéroptère* (*Halticus minutus*, Reuter) qui ravage les Arachides en Cochin-Chine. *T. c.* pp. 79-82.
338. —. Sur une Laboulbéniciée, parasite de *Mormolyce phyllodes*. *T. c.* pp. 156-158.
339. GIGLIO-TOS, E. Parassitismo di una larva d'*Aricia* in un *Carabo*. Ann. Ac. Agric. Torino, xxxiv (pp. 1-13, sep. copy). [*Diptera*.]
340. —. Sul parassitismo di una larva d'*Aricia* in un *Carabo*. Boll. Mus. Tor. vii, No. 116. [*Diptera*.]
- Supplementary Bibliographic List.
341. —. Un nuovo genere di *Sirfidi*. *T. c.* No. 117. [*Diptera*.]
342. —. Diagnosi di nuove specie di *Ditteri*. VI & VII, *Sirfidi* del Messico. *T. c.* Nos. 123 & 132.
343. —. Sui due generi di *Sirfidi*, *Rhopalosyrphus* ed *Omegasyrphus*. *T. c.* No. 118. [*Diptera*.]
344. GILLETTE, C. P. Colorado *Cynipidae*. Ent. News, iii, pp. 246-248. [*Hymenoptera*.]
345. GODING, F. W. A synopsis of the subfamilies and genera of the *Membracidae* of North America. Tr. Am. Ent. Soc. xix, pp. 253-260. [*Rhynchota*.]
346. —. Studies in North American *Membracidae*. Ent. News, iii, pp. 108, 200, & 201. [*Rhynchota*.]
347. GODMAN, F. D., & SALVIN, O. Biologia Centrali-Americana. Parts 99-105.

These parts include the following entomological matter :—

*Coleoptera*, ii (1): *Trogositidae*, pl. iii.

*Coleoptera*, iv (1): *Tenebrionidae*: supp. pp. 477-524, by G. C. CHAMPION.

*Coleoptera*, iv (2): *Cantharidae*, &c., pp. 369-448, pls. xvii-xx, by G. C. CHAMPION.

*Coleoptera*, vi (1): supp. pp. 313-374, pls. xlii & xliii, completing the part. *Phytophaga*, by M. JACOBY.

*Coleoptera*, vii : *Coccinellidae*, pp. 161-176, pl. ix.

*Lepidoptera-Heterocera*, ii, pp. 25-128, pls. xlv-lII. *Geometridae*, by H. DRUCE.

*Diptera*, iii, pp. 57-89, pls. i & ii. *Syrphidae*, by S. W. WILLISTON.

*Rhynchota-Heteroptera*, pp. 353-368, by W. L. DISTANT.

*Neuroptera*, pp. 1-16, pl. i. *Ephemeridae*, by A. E. EATON.

348. GORHAM, H. S. On three new species of *Coccinellidae* from Scioa. Ann. Mus. Genov. (2) x, pp. 910 & 911. [*Coleoptera*.]
349. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLVIII. *Cleride*. Op. cit. (2) xii, pp. 718–746. [*Coleoptera*.]
350. —. Descriptions of *Coleoptera* collected by Mr. John Whitehead on Kina Balu, Borneo. P. Z. S. 1892, pp. 83–90.
351. —. *Coleoptera* from Central China and the Korea. Ent. xxv, Supp. pp. 81–85.
352. —. Description of a new species of *Elater*. T. c. pp. 304 & 305. [*Coleoptera*.]  
— [See also DISTANT (210) and GODMAN & SALVIN (347).]
353. GORHAM, H. S., & GAHAN, C. T. On the *Coleoptera* collected by Mr. W. Bonny in the Aruwimi Valley, Central Africa. P. Z. S. 1892, pp. 90–96.
354. GOULD, L. J. Experiments in 1890, 1891, on the colour-relation between certain *Lepidopterous* larvæ and their surroundings, together with some other observations on *Lepidopterous* larvæ. Tr. E. Soc. 1892, pp. 215–245, pl. xi.
355. GRABER, V. Beiträge zur vergleichenden Embryologie der Insecten. Denk. Ak. Wien, lviii, pp. 803–866, pls. i–vii.
356. GRAESER, L. Beiträge zur Kenntniss der *Lepidopteren*-Fauna des Amurlandes. B. E. Z. xxxvii, pp. 209–234.
357. —. Neue *Lepidopteren* aus Central-Asien. T. c. pp. 299–318.
358. GRÄFFE, E. Le api dei dintorni di Trieste. Atti Mus. civico Trieste, viii, pp. 123–142. [*Hymenoptera*.]  
Includes description of a new *Osmia* by SCHMIEDEKNECHT.
359. GRASSI, B. Conclusioni d'una Memoria sulla società dei *Termiti*. Atti Acc. Lincei, 1892, pp. 33–36. [*Neuroptera*.]
360. GRIFFINI, A. Sulla variabilità delle apofisi metasternali nel *Dytiscus marginalis*, L. Boll. Mus. Zool. Tor. vii, No. 115. [*Coleoptera*.]
361. —. Sui generi *Anonconotus*, Cam., e *Analota*, Brunner. Op. cit. No. 125. [*Orthoptera*.]
362. GRIFFITHS, A. B. Recherches sur les couleurs de quelques insectes. C.R. cxv, pp. 958 & 959.  
Summary in J. R. Micr. Soc. 1892, p. 778.
363. —. On the Blood of the *Invertebrata*. P. R. Soc. Edinb. xix. The Blood of Insects, pp. 123–126.
364. GRILAT, R. Description d'une nouvelle espèce de *Ceutorrhynchus*. Échange, No. 32, 1887. [*Coleoptera*.]

365. [GRILAT, R.] Description d'une nouvelle espèce de *Bythinus* de France. *Op. cit.* No. 58, 1889, p. 78. [*Coleoptera.*]
366. GROUVELLE, A. Voyage de M. E. Simon au Venezuela. *Coléoptères. Colydiides.* Ann. Soc. Ent. Fr. lxi, pp. 99-102.
367. —. Voyage de M. E. Simon à l'île de Luzon, Philippines. *Cucujides.* T. c. pp. 285-288. [*Coleoptera.*]
368. —. Voyage de M. Ch. Alluaud dans le territoire d'Assinie. *Nitidulidae, Colydiidae, Rhysodidae.* T. c. pp. 292-300. [*Coleoptera.*]
369. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. I. *Nitidulides, Cucujides, et Parnides.* 2<sup>me</sup> partie. Ann. Mus. Genov. (2) xii, pp. 833-868. [*Coleoptera.*]
370. —. *Clavicornes* de Bengale. 2<sup>me</sup> Liste. Ann. Ent. Belg. xxxvi, pp. 60 & 61. [*Coleoptera.*]
371. —. Deux espèces nouvelles de *Coléoptères* de la famille des *Nitidulidae.* Notes Leyd. Mus. xiv, pp. 43 & 44.
372. —. Trois espèces nouvelles d'*Helmides* des îles de la Sonde. T. c. pp. 187-189. [*Coleoptera.*]
373. GUILLEBEAU, F. Revision des *Phalacrides* de la Faune paléarctique. Rev. d'Ent. xi, pp. 141-197. [*Coleoptera.*]
374. —. Description d'une nouvelle espèce de *Limnobiis.* T. c. p. 324. [*Coleoptera.*]
375. —. Descriptions de quelques nouvelles espèces de *Coléoptères.* Échange, i, No. 6, &c.
376. —. Description de trois espèces nouvelles de *Coléoptères.* Pp. 1-3.  
Published with Échange, No. 19 (1886), with separate pagination.
377. —. Note sur quelques *Catops* nouveaux. *Op. cit.* 1891, p. 116. [*Coleoptera.*]
378. —. Descriptions de deux *Coléoptères* nouveaux. Bull. Soc. Ent. Fr. lxi, pp. cxxxiii & cxxxiv.
379. —. Description de deux espèces nouvelles de *Coléoptères.* T. c. pp. clxxxiii & clxxxiv.
380. GUMPENBERG, —. Systema Geometrarum zonæ temperationis septentrionalis. Fünfter Theil. N. Acta Ac. L.-C. Nat. cur. lviii, pp. 223-359. [*Lepidoptera.*]  
Reviewed by REBEL (714).
381. GUTHRIE, L. G. On a Toad Killed by the Larvæ of Blow-flies. Ent. M. M. xxviii, pp. 9-12.
382. HAASE, E. Untersuchungen über die Mimicry auf Grundlagen eines natürlichen Systems der *Papilioniden.* Bibl. Zool., Heft viii, Lief. 4-10, pp. 9-98, pls. v-xiv.

383. HAGEN, B. Beitrag zur Kenntniss der *Rhopaloceren* der Insel Banka. Berl. Ent. Zeit. xxxvii, pp. 139-158. [*Lepidoptera*.]
384. HAMPSON, G. F. The Fauna of British India, including Ceylon and Burma. Published under the authority of the Secretary of State for India in Council. Edited by W. T. BLANFORD. Moths, Vol. I. London: 1892, 8vo, xxiii & 527 pp.
385. —. On Stridulation in certain *Lepidoptera*, and on the Distortion of the Hind Wings in the Males of certain *Ommatophorine*. P. Z. S. 1892, pp. 188 & 189.
386. HANDLIRSCH, A. Monographie der mit *Nysson* und *Bembex* verwandten Grabwespen, vi. SB. Ak. Wien, ci, pp. 25-205, pls. i-iii.  
A monograph of the genus *Stizus*.
387. —. Ein neuer *Sphecius* aus Madagaskar. Jahresheft. Ver. Trencsin. xiii, p. 27. [*Hymenoptera*.]
388. HARRINGTON, W. H. Canadian *Hymenoptera*. No. 1. Canad. Ent. xxiv, pp. 98 & 99.
389. —. A New *Ischalia* from Vancouver Island. T. c. p. 132. [*Coleoptera*.]
390. HARVEY, F. L. An American Species of *Templetonia*. Ent. News, iii, p. 57. [*Thysanura*.]
391. —. A New *Smynthurus*. T. c. p. 169. [*Thysanura*.]
392. HEIDEMANN, O. Note on the Food-plants of some *Capside* from the vicinity of Washington. P. E. Soc. Wash. ii, pp. 224-227. [*Rhynchota*.]
393. HEIM, F. Sur le centre réflexe du saut chez la Sauterelle. Bull. Soc. Ent. Fr. lxi, p. xcvi. [*Orthoptera*.]
394. HELLER, K. M. Eine neue *Calandriden*-art der Gattung *Paratasis*, Chev., aus Java. Notes Leyd. Mus. xiv, pp. 269-272. [*Coleoptera*.]
395. —. Ein beachtenswerther Fall von Mimicry. Ent. Nachr. xviii, pp. 183-185.  
A case of supposed "aggressive mimicry."
396. HENKING, H. Untersuchungen über die ersten Entwicklungsvorgänge in den Eiern der Insekten. III. Specielles und Allgemeines. Z. wiss. Zool. liv, pp. 1-274, pls. i-xii.
397. —. Methoden bei entwicklungsgeschichtlichen Untersuchungen an Insecteneiern. Z. wiss. Mikr. viii, pp. 156-167.
398. HENNEGUY, L. F. Contribution à l'embryogénie des *Chalcidiens*. C.R. cxiv, pp. 133-136. [*Hymenoptera*.]  
Translated in Ann. N. H. (6) x, pp. 271 & 272. Summary, J. R. Micr. Soc. 1892, p. 357.

399. HENNEGUY, F., & BINET, A. Contribution à l'étude microscopique du système nerveux larvaire de *Stratiomys longicornis*, Sc. Ann. Soc. Ent. Fr. lxi, pp. 309-316, pl. vi. [*Diptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 356.
400. HENSHAW, S. Report upon the Gypsy-moth in Massachusetts. Bull. Dep. Agric. Ent. xxvi, pp. 75-82. [*Lepidoptera*.]
401. HERING, E. *Platyptilia ochrodactyla*, Hb., *dichrodactyla*, *bertrami*, und *borgmanni*. S. E. Z. liii, pp. 269-279.
402. HEYDEN, L. VON. Beitrag zur *Coleopteren*-Fauna von Turkestan. Unter Mitwirkung der Herren J. FAUST, A. KUWERT, und J. WEISE. xiv, Deutsche e. Z. 1892, pp. 99-104; xv, t. c. pp. 105-110.
403. HEYLAERTS, F. J. M. *Heterocera* exotica, nouvelles espèces des Indes orientales neerlandaises (Suite). Ann. Soc. Ent. Belg. xxxvi. pp. 7-15 & 43-48. [*Lepidoptera*.]
404. HEYMONS, R. Entwicklung der Cölomsäcke von *Phyllodromia germanica*. Verh. deutsch. Zool. Ges. 1892, pp. 139-141.
405. HOFFBAUER, C. Beiträge zur Kenntniss der Insektenflügel. Z. wiss. Zool. liv, pp. 579-630, pls. xxvi & xxvii.  
Describes a variety of glandular structures in the interior of elytra of *Coleoptera*.
406. HOLLAND, W. J. New species of *Neptis* from Africa. Ent. News, iii, pp. 248-250, pl. ix. [*Lepidoptera*.]
407. —. Descriptions of some new species of African *Lepidoptera*. Ann. N. H. (6) x, pp. 284-294.
408. —. Descriptions of some new species of African *Lepidoptera*. Ent. xxv, Supp. pp. 89-95.
409. —. Notes upon the transformations of some African *Lepidoptera*. Psyche vi, pp. 213-216, pl. v.
410. —. The life-history of *Spalgis s-signata*, Holl. T. c. pp. 201-203, pl. iv. [*Lepidoptera*.]
411. HOLMGREN, E. Histologiska studier öfver några *Lepidopter*-larvers digestions kanal och en del af deras körtelartade Bildningar. Ent. Tidskr. xiii, pp. 129-170, pls. i-vi.
412. HONRATH, E. G. Neue *Rhopalocera*, x. B. E. Z. xxxvi, pp. 429-440. [*Lepidoptera*.]
413. —. Eine neue *Notodonta*. T. c. p. 445. [*Lepidoptera*.]
414. HORMUZAKI, C. v. *Lepidopterologische* Beobachtungen in der Bucovina. Ent. Nachr. xviii, pp. 305-321.
415. —. Zursystematischen Begrenzung der Gattungen *Satyrus*, Latr. und *Epinephele*, Hübn. T. c. pp. 354-358. [*Lepidoptera*.]

416. HORN, G. H. Studies in *Chrysomelidae*. Tr. Am. Ent. Soc. xix, pp. 1-17. [*Coleoptera*.]
417. —. Notes on *Amara*, subg. *Tricena*. T. c. pp. 18 & 19. [*Coleoptera*.]
418. —. Random studies in N. American *Coleoptera*. T. c. pp. 40-48.
419. —. The *Eumolpini* of Boreal America. T. c. pp. 195-234. [*Coleoptera*.]
420. —. Variations of Color-markings in *Coleoptera*. Ent. News, iii, pp. 25-28, pl. i.
421. HORN, W. Fünf dekaden neuer *Cicindeleten*. Deutsche c. Z. 1892, pp. 65-91. [*Coleoptera*.]
422. —. Die *Cicindeliden* des Wiener Hof-Museums. T. c. pp. 92-98. [*Coleoptera*.]
423. —. Drei neue afrikanische *Cicindeliden*. T. c. pp. 220 & 221. [*Coleoptera*.]
424. —. Nachträge zur Monographie der *Cicindeliden*-Gattung *Collyris* (Chaudoir, 1864). T. c. pp. 353-368. [*Coleoptera*.]
425. —. Eine neue *Cicindela* aus Sao Paulo. T. c. p. 368. [*Coleoptera*.]
426. —. Einige neue *Cicindeliden* Arten und Varietaten. T. c. pp. 369-372. [*Coleoptera*.]
- HORNER, A. C. [See BLATCH & HORNER (103).]
427. HORVÁTH, G. Sur l'existence des séries parallèles dans le cycle biologique des *Pemphigiens*. C.R. cxiv, pp. 842-844. [*Rhynchota*.]  
Summary in J. R. Micr. Soc. 1892, p. 357.
428. —. *Hemiptera* nonnulla nova Asiatica. Term. füzetek, xv, pp. 134-137.
429. —. Uebersicht der *Hemipteren*-Gattung *Campylostira*, Fieb. Wien. ent. Z. xi, pp. 309-311. [*Rhynchota*.]
430. —. Nouvelle révision du genre *Scolopostethus*. Rev. d'Ent. xi, pp. 253-256. [*Rhynchota*.]
431. —. Chasses hivernales dans le midi de la France. T. c. pp. 128-140. [*Rhynchota*.]
432. HOWARD, L. O. The Biology of the *Hymenopterous* Insects of the Family *Chalcididae*. P. U. S. Nat. Mus. xiv, pp. 567-588.
433. —. Insects of the Subfamily *Encyrtinae* with branched antennæ. Op. cit. xv, pp. 361-369, pls. xlvii & xlviii. [*Hymenoptera*.]
434. —. The Habits of *Melittobia*. P. E. Soc. Wash. ii, pp. 244-248. [*Hymenoptera*.]
435. —. The *Hymenopterous* Parasites of Spiders. T. c. pp. 290-302, pl. ii.
436. —. A Note on the Parasites of the *Coccidae*. T. c. pp. 351-353.

437. HUBBARD, H. G. Notes on the Larva of *Amphizoa*. Ins. Life, v, pp. 19-22. [*Coleoptera*.]
438. —. Description of the Larva of *Amphizoa lecontei*. P. E. Soc. Wash. ii, pp. 341-346, pl. iii. [*Coleoptera*.]
439. —. The Life-history of *Xenos*. Canad. Ent. xxiv, pp. 257-261. [*Coleoptera*.]
440. HUDSON, G. V. An Elementary Manual of New Zealand Entomology. London: 1892, 8vo, 128 pp., xx pls.
441. HULST, G. D. New Species of *Pyrallidæ*. Canad. Ent. xxiv, pp. 59-63. [*Lepidoptera*.]
442. HUTH, E. Die Futterpflanzen des Seidenspinners. Helios, x, pp. 51-53. [*Lepidoptera*.]
443. JACOBSON, G. Beitrag zur Systematik des *Geotrypini*. Hor. Ent. Ross. xxvi, pp. 245-257. [*Coleoptera*.]
444. —. Analytische Übersicht der bekannten *Donacia*- und *Plateumaris*-Arten der alten Welt. T. c. pp. 412-437. [*Coleoptera*.]
445. —. Conspectus specierum generis *Haltica*, Geoffr., ex Asia media hucusque notarum. T. c. pp. 462-467. [*Coleoptera*.]
446. JACOBY, M. Viaggio di Leonardo Fea in Birmania e regioni vicine. LI. Description of the New Genera and Species of the *Phytophagous Coleoptera*. Ann. Mus. Genov. (2) xii, pp. 869-999.
447. —. Descriptions of some New Genera and Species of *Phytophagous Coleoptera* from Madagascar. P. Z. S. 1892, pp. 564-579, pl. xxxix.
448. —. Descriptions of some New Species of *Phytophagous Coleoptera*, and synonymic notes. Ent. xxv, Supp., pp. 86-88.  
— [See also DISTANT (210) and GODMAN & SALVIN (347).]
449. JACQUET, E. Recherches et remarques sur l'organisation extérieure et la classification des *Coléoptères*, pp. 1-31 & table.  
Includes an attempt to define the "series": issued with Échange, Nos. 37-42.
450. —. Tableaux analytiques pour la détermination des *Rhynchophores* de la Faune française, pp. 1-34.  
This fragment—its condition as such being due to the decease of the author—was issued with Nos. 42-45 of Échange.
451. JAKOWLEFF, B. E. Generis *Lethrus*, Scop., species novæ vel parum cognitæ. Hor. Ent. Ross. xxvi, pp. 182-199. [*Coleoptera*.]
452. —. Die *Peritrechus*-Arten der russischen Fauna. T. c. pp. 228-231. [*Rhynchota*.]
453. JAKOWLEW, A. Diagnoses *Tenthredinidarum* novarum ex Russia europæa, Sibiria, Asia media et confinium. T. c. pp. 1-62. [*Hymenoptera*.]

454. JANSON, O. E. On *Teniodera quadrilineata* and some allied species. Notes Leyd. Mus. xiv, pp. 55-60. [*Coleoptera.*]
455. JAWOROWSKI, A. Prof. Dr. Veit Graber. Ein Nachruf. Wien. ent. Z. xi, pp. 253-262.  
Includes list of his writings, and a portrait.
456. JENKINSON, W. Secreting Glands in the Feet of Flies. Sci. Goss. 1892, pp. 85-87. [*Diptera.*]
457. JOHANSEN, H. Ueber die Entwicklung des Imago-anges von *Vanessa*. Zool. Anz. xv, pp. 353-355.  
Summary in J. R. Micr. Soc. 1892, p. 779.
458. JOSEPH, G. L'influence de l'éclairage sur la disjonction des organes visuels, leur reduction, leur atrophie complète et leur compensation chez les animaux cavernicoles. Bull. Soc. Zool. Fr. 1892, pp. 121-125.  
Several cases in *Insecta* are discussed.
459. KANNEGIETER, J. Z. Eenige opmerkingen over het Verzamelen en conserveeren van Insecten in de Tropen. Tijdschr. Ent. xxxv, pp. 59-72.
460. KAESCH, F. Insecten von Baliburg (Deutsch-Westafrika) gesammelt von Herrn Dr. Eugen Zintgraff. Ent. Nachr. xviii, pp. 161-183.
461. —. Vorläufige Beschreibung von drei neuen *Lepidopteren* von Bismarckburg im Togolande (Deutsch-Westafrika). *T. c.* pp. 113-117.
462. —. *Abantis bismarcki* eine neue *Hesperiide* von Bismarckburg im Togolande (Deutsch-Westafrika). *T. c.* p. 228. [*Lepidoptera.*]
463. —. *Caprona adelica* eine neue *Hesperiide* von der deutschen Forschungs-station Bismarckburg im Togolande (Westafrika). *T. c.* pp. 241-244. [*Lepidoptera.*]
464. —. Vorläufige Beschreibung einer neuen *Saturniide* aus dem Kamerungebirge. *T. c.* pp. 353 & 354. [*Lepidoptera.*]
465. —. Kurze Charakteristik neuer Wanzen aus Kamerun gesammelt durch Herrn Dr. Paul Preuss. *T. c.* pp. 129-136. [*Rhynchota.*]
466. —. Ueber eine Collection durch Herrn Hans Fruhstorfer auf Java gefangener *Æschniden*. *T. c.* pp. 249-255. [*Neuroptera.*]
467. —. Zwei neue chinesische *Libellen* aus der Familie der *Kalopterygiden*. Berl. Ent. Zeit. xxxvi, pp. 455 & 456. [*Neuroptera.*]
468. —. Eine neue von Herrn Dr. Paul Preuss bei Buea im Kamerungebirge entdeckte *Odonate* der Gattung *Macromia*. *Op. cit.* xxxvii, p. 15. [*Neuroptera.*]
469. —. Fünf neue afrikanische *Mantodeen*. Ent. Nachr. xviii, pp. 5-13. [*Orthoptera.*]

470. [KARSCH, F.] Kurze Charakteristik neuer *Mantodeen* aus Kamerun gesammelt von Herrn Dr. Paul Preuss. *T. c.* pp. 145-150. [*Orthoptera*.]
471. —. Uebersicht der von Herrn Dr. Paul Preuss auf der Barombi-Station in Kamerun gesammelten *Locustodeen*. Berl. Ent. Zeit. xxxvi, pp. 317-346. [*Orthoptera*.]
472. —. Verzeichniss der von Herrn Dr. Paul Preuss im Kamerungebirge erbeutete *Orthopteren*. *Op. cit.* xxxvii, pp. 65-78.
473. KATURIC, M. Osservazioni biologiche sulle Formiche. Glasnik Naravosl. Druzt. ii, pp. 105-110. [*Hymenoptera*.]
474. —. Ulteriori osservazioni biologiche sulle Formiche. *Op. cit.* vi, pp. 14-28. [*Hymenoptera*.]
475. KELLER, C. Neue Beobachtungen über Symbiose zwischen Ameisen und Akazien. Zool. Anz. xv, pp. 137-143. [*Hymenoptera*.]  
Includes descriptions by FOREL. A note by EMERY, *t. c.* p. 237, refers to this. Summary in J. R. Micr. Soc. 1892, p. 359.
476. KELLICOTT, D. S. Notes on the *Ægeriide* of Central Ohio. Canad. Ent. xxiv, pp. 42-47, and II, *t. c.* pp. 209-212. [*Lepidoptera*.]
477. —. Notes on *Ægeriide* of Central Ohio. Ins. Life, v, pp. 81-85. [*Lepidoptera*.]
478. KELLOGG, V. L. Some notes on the *Mallophaga*. Tr. Kansas Ac. xii, pp. 46-48. [*Neuroptera*.]
479. —. Notes on *Melitera dentata*, Grote. Kansas quart. i, pp. 39-41, pl. viii. [*Lepidoptera*.]
480. KERNER, A. v. MARILAUN. Pflanzenleben. Zweiter Band. Geschichte der Pflanzen. Leipzig, 1891, 8vo, 842 pp.  
MIK, in Wien. ent. Z. xi, pp. 28-30, summarizes the views of this writer on galls.
481. KERREMANS, C. Catalogue synonymique des *Buprestides* décrits de 1758 à 1890. Mem. Soc. Ent. Belg. i, pp. 1-304. [*Coleoptera*.]
482. —. Voyage de M. Ch. Alluaud dans le territoire d'Assinie. *Buprestidae*. Ann. Soc. Ent. Fr. lxi, pp. 301-304. [*Coleoptera*.]
483. —. Voyage de M. Simon aux îles Philippines. 3e Mémoire. *Buprestidae*. *T. c.* pp. 21-26. [*Coleoptera*.]
484. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLIX. *Buprestides*. Ann. Mus. Genov. (2) xii, pp. 809-832. [*Coleoptera*.]
485. —. Nouvelle espèce de *Buprestide* recueillie dans l'île d'Engano, par Mr. le Dr. E. MODIGLIANI. *T. c.* p. 1000. [*Coleoptera*.]
486. —. Viaggio di Lamberto Loria nella Papuasias orientale. VII. *Buprestides*. *T. c.* p. 1001-1006. [*Coleoptera*.]

487. [KERREMANS, C.] Note sur les *Chrysodémides* africaines attribuées au genre *Iridotenia*. Ann. Ent. Belg. xxxvi, pp. 49-55. [*Coleoptera*.]
488. —. Diagnoses de deux *Buprestides* de la région du lac Tanganyka. *T. c.* p. 56. [*Coleoptera*.]
489. —. *Buprestides* de l'Inde. *T. c.* pp. 171-226. [*Coleoptera*.]
490. KERRY, F. Migration of *Pieris brassicae* observed at Harwich. Essex Nat. vii, p. 205. [*Lepidoptera*.]
491. \*KESSLER, H. F. Die Ausbreitung der Reblaus Krankheit in Deutschland und deren Bekämpfung, unter Benützung von amtlichen Schriftstücken beleuchtet. Berlin: 1892. Cf. Wien. ent. Z. xi, p. 87.
492. KIEFFER, J. J. Beobachtungen über Gallmücken mit Beschreibung einiger neuen Arten. Wien. ent. Z. xi, pp. 212-224, pl. i. [*Diptera*.]
493. —. Zur Kenntniss der Weidengallmücken. Berl. Ent. Zeit. xxxvi, pp. 241-258, pl. ix. [*Diptera*.]
494. —. Mittheilungen über Gallmücken. *T. c.* pp. 259-266. [*Diptera*.]
495. —. Die Zoocecidien Lothringens. Ent. Nachr. xviii, pp. 43-46, 59-64, & 73-80.
496. KIRBY, W. F. A synonymic Catalogue of *Lepidoptera Heterocera* (Moths). Vol. I. *Sphinges* and *Bombyces*. London: 1892, 8vo, pp. xii & 951.
497. —. Descriptions of three new species of *Saturniidae* in the collection of the British Museum. Ann. N. H. (6) ix, pp. 173-175, pl. ix. [*Lepidoptera*.]
498. —. Elementary Text-book of Entomology. Second Edition. An appendix and index have been added, occupying pp. 240-281.  
— [See also SMITH & KIRBY (858).]
499. KLEMENSIEWICZ, S. Eine neue Art der Gattung *Ellopiia*. Verh. z.-b. Wien, xlii, SB. p. 67. [*Lepidoptera*.]
500. KNOTEK, J. Zwei neue *Scolytidae* aus dem Occupationsgebiete. Wien. ent. Z. xi, pp. 234 & 235. [*Coleoptera*.]  
Translated from a paper in the Croatian language, published in an almost unknown Museum-journal.
501. KOHL, F. F. Neue *Hymenopterenformen*. Ann. Hofmuseum Wien, vii, pp. 197-234, pls. xiii-xv.
502. KOLBE, H. J. Ueber die von Hauptmann Kling und Dr. R. Büttner in Togo (Ober-Guinea) gesammelten melitophilen *Lamellicornier*. S. E. Z. liii, pp. 125-142. [*Coleoptera*.]
503. —. Ueber *Elaphinis atomosparsa*, Fairm. *T. c.* p. 143. [*Coleoptera*.]

504. [KOLBE, H. J.] Ueber zwei neue *Cicindelen* aus Afrika. S. E. Z. liii, pp. 143-145. [*Coleoptera*.]
505. —. Ueber die Gattung *Stephanorrhina* und ihre Arten. T. c. pp. 145-155. [*Coleoptera*.]
506. —. Beiträge zur Kenntniss der *Brenthiden*. T. c. pp. 162-175. [*Coleoptera*.]
507. —. Ueber die von Herrn Leopold Conradt in Deutsch-Ostafrika namentlich in der Gebirgslandschaft von Usambara gesammelten melitophilen *Lamellicornier*. SB. nat. Fr. 1892, pp. 62-75. [*Coleoptera*.]
508. —. Ueber die melitophilen *Lamellicornier* von Kamerun. T. c. pp. 235-261. [*Coleoptera*.]
509. —. Einführung in die Kenntniss der Insekten. Pts. I-X. Berlin : 8vo.  
Commenced in 1889 : 528 pp. had appeared at the end of 1892.
510. KONOW, F. W. Analytische Uebersicht der europäischen Arten der *Tenthrediniden*-Gattung *Schizocera*, Latr. Wien. ent. Z. xi, pp. 11-22. [*Hymenoptera*.]
511. KOROTNEFF, A. Histolyse und Histogenese des Muskelgewebes bei der Metamorphose der Insekten. Biol. Centralbl. xii, pp. 261-265.  
Summary in J. R. Micr. Soc. 1892, p. 468.
512. KOWARZ, F. Die europäischen Arten der *Dipteren*-Gattung *Lispa*, Latr. Wien. ent. Z. xi, pp. 33-54.
513. KRAATZ, G. *Paussus cervinus*, n. sp. Deutsche e. Z. 1892, p. 8. [*Coleoptera*.]
514. —. Monographische Revision der *Ruteliden*-Gattung *Popillia*, Serville. T. c. pp. 177-192 & 225-306. [*Coleoptera*.]
515. —. Zwei neue *Macronotiden*-Gattungen von Java. T. c. pp. 312-314. [*Coleoptera*.]
516. —. Ueber *Taniodera*-Arten von Java und Malacca. T. c. pp. 315-320. [*Coleoptera*.]
517. —. *Paussus opacus*, n. sp. T. c. p. 377. [*Coleoptera*.]
518. —. *Hadrosticta*, n. g., *Cetoniidarum*. T. c. p. 378. [*Coleoptera*.]
519. KRASSILTSCHIK, J. Zur Anatomie der *Phytophthires*. Zool. Anz. xv, pp. 217-223. [*Rhynchota*.]  
Summary in J. R. Micr. Soc. 1892, p. 781.
520. KRAUSS, H. *Dermapteren* und *Orthopteren* aus Tunis. Wien. ent. Z. xi, pp. 143-150.
521. —. Systematisches Verzeichniss der canarischen *Dermapteren* und *Orthopteren* mit Diagnosen der neuen Gattungen und Arten. Zool. Anz. xv, pp. 163-171.

522. KRIECHBAUMER, —. Blattwespen Studien. Ent. Nachr. xviii, pp. 98–101. [*Hymenoptera.*]
523. —. *Xylonomiden* und *Pimpliden*-Studien. T. c. pp. 211–220.
524. —. *Ophioniden*-Studien. T. c. pp. 232–235. [*Hymenoptera.*]
525. —. *Cryptiden*-Studien. T. c. pp. 340–352, 362–365, & 370–373. [*Hymenoptera.*]
526. —. Ein neuer *Psilomastax*. T. c. p. 101. [*Hymenoptera.*]
527. KRIEGER, R. Zwei *Hymenopteren*-Zwitter. Z. Naturw. lxv, pp. 137–140.
528. KULAGIN, N. Zur Entwicklungsgeschichte der parasitischen Hautflügler. Zool. Anz. xv, pp. 85–87. [*Hymenoptera.*]  
Summary in J. R. Micr. Soc. 1892, p. 470.
529. KÜNCKEL, J. D'HERCULAIS. Le Criquet pèlerin (*Schistocera peregrina*) et ses changements de coloration ; rôle des pigments dans les phénomènes d'histolyse et d'histogenèse qui accompagnent la métamorphose. C.R. cxiv, pp. 240–242. [*Orthoptera.*]  
Summary in J. R. Micr. Soc. 1892, p. 468.
530. —. Sur les changements de coloration et sur le rôle des pigments dans les phénomènes d'histolyse et d'histogenèse qui accompagnent les mues et la métamorphose du Criquet pèlerin. Bull. Soc. Ent. Fr. lxi, pp. xxv–xxvii.
531. —. Les invasions des *Acridiens*, vulgo Sauterelles, en Algérie pendant l'année 1891. C.R. Ass. Fr. Sci. xx, pt. 1, p. 241. [*Orthoptera.*]
532. —. Les invasions des *Acridiens* en Algérie en 1891. Observations biologiques et physiologiques. T. c. pt. 2, pp. 554–556. [*Orthoptera.*]
533. KUNZE, E. Insects attracted by Fragrance or Brilliancy of Flowers for purposes of Cross fertilization. Canad. Ent. xxiv, pp. 173–177.  
KUWERT, A. [See HEYDEN (402).]
534. LAMEERE, A. Nouveaux *Lamiides* de l'Afrique tropicale. Ann. Ent. Belg. xxxvi, pp. 506–509. [*Coleoptera.*]
535. —. Note sur les Fourmis de la Belgique. T. c. pp. 61–69. [*Hymenoptera.*]
536. LAMPA, S. Berättelse till Landtbruksstyrelsen, 1891. Ent. Tidskr. xiii, pp. 1–38.
537. —. *Agromyza lappæ*, Loew. En för Sveriges fauna ny flugart. T. c. pp. 117–120. [*Diptera.*]
538. —. Kornflugan, *Chlorops pumilionis*, Bierk. T. c. pp. 257–274, pl. vii. [*Diptera.*]

539. LATASTE, F. Mode de preparation et d'emploi d'un ciment adapté au bouchage des flacons des collections d'objets d'histoire naturelle conservés dans l'alcool. (Ciment Emzed.) Act. Soc. Chili, ii, pp. 190-195.
540. —. La question du Criquet voyageur signalé l'an dernier dans les provinces australes du Chili. *T. c.* pp. 200-209. [*Orthoptera*.]
541. LATTER, O. H. The secretion of potassium hydroxide by *Dicranura vinula* (imago), and the emergence of the imago from the cocoon. Tr. E. Soc. 1892, pp. 287-292. [*Lepidoptera*.]
542. LEECH, J. H. Butterflies from China, Japan, and Corea. Parts I & II. London: 1892, 4to, pp. 1-286, pls. i-xiii. [*Lepidoptera*.]
543. LEFÈVRE, E. Description of new species of South African *Eumolpidae*. Tr. S. African Phil. Soc. vi, pp. 39-43. [*Coleoptera*.]
544. —. Description d'une nouvelle espèce de *Clytrides*. Bull. Soc. Ent. Fr. lxi, p. xciv. [*Coleoptera*.]
545. LÉON, N. Labialtaster bei den *Hemipteren*. Zool. Anz. xv, pp. 145 & 146.
546. LEPRIEUR, C. E. La chasse aux *Coléoptères*. 2<sup>e</sup> édition, revue, augmentée et corrigée. Lyons: 1887, 8vo, 64 pp.  
Published as supplements to Échange.
547. LESNE, P. Collection d'insectes formée dans l'Indo-Chine par M. Pavie, Consul de France au Cambodge. *Coléoptères, Anthribines*. N. Arch. Mus. Paris (3) iii, pp. 225-228.
548. —. Sur un *Braconide* du genre *Perilitus*, Nees. Ann. Soc. Ent. Fr. lxi, pp. 305-308, pl. v. [*Hymenoptera*.]
549. LETHIERRY, L. Description d'un nouveau genre d'*Homoptères* d'Europe, et note sur le *Delphax lugubris*. Rev. d'Ent. xi, pp. 69 & 70. [*Rhynchocha*.]
550. —. Liste d'*Hemiptères* récoltés à Mahé (Inde) par M. Em. Deschamps. Bull. Soc. Z. Fr. 1892, pp. 207-209.
551. LETZNER, K. Verzeichniss der Käfer Schlesiens. Zweite Auflage; Fortgesetzt und vollendet von J. Gerhardt. 8vo, xxvi pp.  
Published as a supplement to Z. Ent. Bresl. xvii.
552. LÉVEILLÉ, A. Description d'un *Temnochilide* nouveau. Bull. Soc. Ent. Fr. lxi, p. xcvi. [*Coleoptera*.]
553. LEWIS, G. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLII. *Histeridae*, part 2. Ann. Mus. Genov. (2) xii, pp. 16-39. [*Coleoptera*.]
554. —. On some Japanese species of *Paromalus*. Ann. N. H. (6) ix, pp. 32-38. [*Coleoptera*.]
555. —. On some new species of *Histeridae*. *T. c.* pp. 341-357. [*Coleoptera*.]

556. [LEWIS, G.] On the Japanese *Cleridæ*. Ann. N. H. x, pp. 183-192. [*Coleoptera*.]
557. —. On *Eretmotus* and *Epiechnus* (*Histeridæ*). T. c. pp. 231-236, pl. xix. [*Coleoptera*.]
558. —. On some new species of *Histeridæ*, and one new genus. Ent. M. M. xxviii, pp. 102-104. [*Coleoptera*.]
559. —. On a new *Onthophilus* from Mexico. T. c. p. 124. [*Coleoptera*.]
560. —. Note on *Sternocaelis*, and on one new species. T. c. p. 263. [*Coleoptera*.]
561. —. On a new species of *Histeridæ* of Bengal. Ann. Ent. Belg. xxxvi, pp. 142 & 143. [*Coleoptera*.]
562. LIEBEL, R. Die Zooecidien (Pflanzendeformationen) der Holzgewächse Lothringens. Ent. Nachr. xviii, pp. 257-287.  
Arranged phytologically.
563. LINDEN, GRÄFIN MARIA V. Beiträge zur Biologie der *Phryga-niden*. Biol. Centralbl. xii, pp. 523-527. [*Neuroptera*.]
564. LINTNER, J. A. Seventh report on the Injurious and other Insects of the State of New York. Albany: 1891, pp. 201-404. From the 44th Report of the New York State Museum.
565. LOWER, O. B. Descriptions of New South Australian *Lepidoptera*. Tr. R. Soc. S. Austr. xv, pp. 5-17.
566. —. Scientific Results of the Elder Exploring Expedition. *Lepidoptera*. Op. cit. xvi, pp. 10-15.
567. LOWNE, T. The Anatomy, Physiology, Morphology and Development of the Blowfly. Part III (Vol. i, pp. 215-350).  
Devoted chiefly to embryology and development. Completes Vol. i.
568. LUCAS, T. P. On Queensland and other Australian *Lepidoptera*, with descriptions of new species. P. Linn. Soc. N.S.W. (2) vi, pp. 277-306.
569. —. On twenty new species of Australian *Lepidoptera*. Op. cit. vii, pp. 249-266.
570. LYMAN, H. H. Can Insects survive freezing? Canad. Ent. xxxiv, pp. 1-6.
571. MABILLE, P. Six *Lépidoptères Hétérocères* d'Afrique. Bull. Soc. Ent. Fr. lxi, pp. cxxxviii & cxxxix.
572. —. Nouvelle espèce du genre *Zygæna*. T. c. p. cl. [*Lepidoptera*.]
573. MABILLE & VUILLOT. Novitates *Lepidopterologicae*. Fasc. 7-9, pls. viii-xii, pp. 49-89.
574. MACLACHLAN, R. Supplementary note on the *Neuroptera* of the Hawaiian Islands. Ann. N. H. (6) x, pp. 176-178.

575. MAGRETTI, P. Di alcune specie d'*Imenotteri* raccolte dall' Ing. L. Bricchetti Robecchi nel paese dei Somali. Ann. Mus. Genov. (2) x, pp. 950-960.
576. —. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLIII. *Imenotteri*. Parte prima. *Mutillidei*, *Scoliidei*, *Tifiidei*, *Tinnidei*, colla descrizione di parecchie nuove specie. Op. cit. xii, pp. 197-266, pl. v.
577. MALLY, F. W. Report of progress in the investigation of the Cotton Boll Worm. Bull. Dept. Agric. Ent. xxvi, pp. 45-56. [*Lepidoptera*.]
578. —. An insectivorous primrose (*Oenothera speciosa*). P. E. Soc. Wash. ii, pp. 288 & 289.
579. MANDERS, N. The Butterflies of Rawal Pindi and the Murree Hills (Punjab). Ent. M. M. xxviii, pp. 88-92 & 130-132. [*Lepidoptera*.]
580. MARCHAL, P. Notes sur la vie et les mœurs des Insectes. Observations sur l'*Ammophila affinis*. Arch. Z. expér. (2) x, pp. 23-36. [*Hymenoptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 471.
581. MARLATT, C. L. A study of the ovipositor in *Hymenoptera*. P. E. Soc. Wash. ii, pp. 201-205.
582. —. Notes on the early stages of three Moths. Tr. Kansas Ac xi, pp. 110-114. [*Lepidoptera*.]
583. MARSHALL, T. A. On a new genus and species of *Belytidæ* from New Zealand. Ent. M. M. xxviii, p. 275. [*Hymenoptera*.]  
— [See also BUYSSON & MARSHALL (149).]
584. MARTEL, V. Les Cécidies des environs d'Elbeuf. Bull. Soc. d'Elbeuf, 1891, pp. 79-134.  
Arranged according to plants on which the galls occur.
585. MARTIN, J. Sur la respiration des larves de *Libellules*. Bull. Soc. Philom. (8) iv, pp. 122-124. [*Neuroptera*.]
586. MARTIN, L. Aus meinen Tagebuche. Berl. Ent. Zeit. xxxvii, pp. 291-298. [*Lepidoptera*.]  
Jottings of a collector of *Lepidoptera* in Sumatra.
587. MARTIN, R. Les *Trichoptères* du département de l'Indre. Rev. d'Ent. xi, pp. 1-23 & 76. [*Neuroptera*.]
588. —. Les *Perlides* du département de l'Indre. T. c. pp. 198-201. [*Neuroptera*.]
589. —. Les *Psocides* du département de l'Indre. T. c. pp. 285-288. [*Neuroptera*.]

590. MASKELL, W. M. Further *Coccid* notes ; with descriptions of new species, and remarks on *Coccids* from New Zealand, Australia, and elsewhere. Tr. N. Z. Inst. xxiv, pp. 1-64, pls. i-xiii.
591. —. Migrations and new localities of some *Coccids*. Ent. M. M. xxviii, pp. 69-71.
592. —. A new *Icerya*, and some other *Coccids* from Australia. T. c. pp. 183 & 184.
593. MATTHEWS, A. Notes on Dr. C. Flach's synonymic list of the European *Trichopterygidae*. Ann. N. H. (6) ix, pp. 442-448. [*Coleoptera*.]
594. MAYER, P. Zur Kenntniss von *Coccus cacti*. MT. z. Stat. Neap. x, pp. 505-518, pl. xxxii. [*Rhynchota*.]
595. MEADE, R. H. Speciei novæ *Tachinidarum* descriptio. Wien. ent. Z. xi, p. 114. [*Diptera*.]
596. —. Description d'un *Diptère* nouveau. Bull. Soc. Ent. Fr. lxi, p. cxvi.
597. —. Annotated list of British *Tachinidae*. Ent. M. M. xxviii, pp. 17, &c., &c. [*Diptera*.]
598. MEDINA, —. Nuevas especies de *Véspidos* de España. Act. Soc. Esp. xxi, pp. 142-144. [*Hymenoptera*.]
599. MEINERT, F. Træk af Insektlivet i Venezuela. Ent. Medd. iii, pp. 125-166.
600. MERRIFIELD, F. The effects of Artificial Temperature on the Colouring of several species of *Lepidoptera*, with an account of some experiments on the effect of light. Tr. E. Soc. 1892, pp. 33-44.  
Summary in J. R. Micr. Soc. 1892, p. 469.
601. —. Double-broodedness: whether influenced by the state of the food-plant? Ent. M. M. xxviii, p. 20. [*Lepidoptera*.]
602. MEUNIER, F. Aperçu des genres de *Dolichopodidae* de l'ambre suivi du Catalogue bibliographique des *Diptères* fossiles de cette Résine. Ann. Soc. Ent. Fr. lxi, pp. 377-384.
603. MEYRICK, E. On the classification of the *Geometrina* of the European fauna. Tr. E. Soc. 1892, pp. 53-140, pl. iii. [*Lepidoptera*.]  
Reviewed by REBEL (714).
604. —. Revision of Australian *Lepidoptera*. v. P. Linn. Soc. N.S.W. (2) vi, pp. 581-678.
605. —. On new species of *Lepidoptera*. Tr. N. Z. Inst. xxiv, pp. 216-220.
606. MIK, J. *Dipterologische* Miscellen. xx. (1 Serie.) Wien. ent. Z. xi, pp. 55-58.  
Includes a table of contents of the twenty memoirs forming the series.

607. [MIK, J.] *Dipterologische Miscellen*. (2 Serie.) Wien, ent. Z. xi, pp. 116, &c.
608. —. Zur Kenntniss der Dipteren Gattung *Hilara*. *T. c.* pp. 78–85, [*Diptera*.]
609. —. Ueber ein neues hochalpines *Dipteron* aus der Familie der *Dolichopodiden*. *T. c.* pp. 279–281.
610. —. Ueber zwei *Cecidomyiden*-Gallen aus Tirol. *T. c.* pp. 306–308, pl. iii. [*Diptera*.]
611. MISKIN, W. H. A revision of the Australian *Sphingidæ*. P. R. Soc. Queensl. viii, pt. iii, pp. [*Lepidoptera*.]
- This and the two following are recorded from separate copies ; although taken from Vol. viii of the Queensland Society, Vol. vii does not appear to have yet reached London.
612. —. Further note on Australian *Sphingidæ*. *T. c.* pp. [*Lepidoptera*.]
613. —. New species of Australian *Macro-Lepidoptera*. *T. c.* pp.
614. MOBERG, J. C. Om en Hemipter från Sveriges Undre Graptoletskiffer. Geol. Fören. Stockholm Förh. xiv, pp. 121–124.
615. MOCSÁRY, A. *Hymenoptera* in expeditione Comitiss Belæ Szechenyi in China et Tibet a Dom G. Kreitner et L. Lóczy anno 1879 collecta. Term. füzetek, xv, pp. 126–131.
616. MONIEZ, R. Mémoire sur quelques Acariens et *Thysanoures* parasites ou commensaux des Fourmis. Rev. Biol. iv, pp. 377–391.
617. MONTANDON, A. Deux *Hémiptères* nouveaux. Rev. d'Ent. xi, pp. 73–76.
618. —. *Hémiptères-Hétéroptères* nouveaux. *T. c.* pp. 265–273.
619. —. *Hémiptères Plataspidés* nouveaux. *T. c.* pp. 273–284.
620. —. Études sur la sous-famille des *Plataspidinae*. *T. c.* pp. 294–308. [*Rhynchota*.]
621. MONTI, R. Ricerche microscopiche sul sistema nervoso degli insetti. Rend. Ist. Lombardo (2) xxv, pp. 533–540 & 654.  
Reported in Arch. Ital. Biol. xviii, pp. 62–70.
622. MOORE, F. *Lepidoptera Indica*. Pts. IX–XII.  
Vol. I is completed, and consists of xii and 317 pp. and 94 pls.
623. —. Descriptions of some new species of Asiatic *Saturniidae*. Ann. N. H. (6) ix, pp. 448–453. [*Lepidoptera*.]
624. MORAWITZ, F. *Hymenoptera aculeata, rossica nova*. Hor. Ent. Ross. xxvi, pp. 132–181.
625. MORGAN, A. C. F. A new genus and species of *Aleurodidae*. Ent. M. M. xxviii, pp. 29–33, pl. i. [*Rhynchota*.]  
The description is partly by DOUGLAS.
626. —. Observations on *Coccidæ*. No. 9. *T. c.* pp. 12–16.

- MORGAN, A. C. F. [See also COCKERELL (179).]
627. MORTENSEN, R. C. *Lucilia sylvarum*, Meig., als Schmarotzer an *Bufo vulgaris*. Zool. Anz. xv, pp. 193-195. [*Diptera*.]
628. MÜGGENBURG, F. H. Der Rüssel der *Diptera pupipara*. Arch. f. Nat. lviii, i, pp. 287-332, pls. xv & xvi.  
Summary in J. R. Micr. Soc. 1893, p. 35.
629. MÜLLER, G. W. Beobachtungen an im Wasser lebenden Schmetterlingsraupen. Zool. Jahrb. Syst. vi, pp. 617-630, pl. xxviii. [*Lepidoptera*.]
630. MURTFELDT, M. E. Entomological notes for the season of 1891. Bull. Dep. Agric. Ent. xxvi, pp. 36-44.
631. NERÉN, C. H. Entomologiska Anteckningar. Ent. Tidskr. xiii, pp. 57-68. [*Hymenoptera*.]
632. —. Entomologiska Sommarstudier. T. c. pp. 97-116. [*Hymenoptera*.]
633. NEUMOEGEN, B. Some beautiful new *Bombycids* from the West and Northwest. Canad. Ent. xxiv, pp. 225-228. [*Lepidoptera*.]
634. —. Description of a new *Cossid* from Texas. Ent. News. iii, p. 258. [*Lepidoptera*.]
635. NEVINSON, B. G. Description of three new species of the genus *Phanæus*. Ent. M. M. xxviii, pp. 33-35. [*Coleoptera*.]
636. —. Revised synonymic list of species in the genus *Phanæus*, Macleay. London, 1892, 8vo, 10 pp.
637. NEWSTEAD, R. On new or little known *Coccidæ*, chiefly English. Ent. M. M. xxviii, pp. 141-147, pl. ii.
638. NICÉVILLE, L. DE. On new and little known Butterflies from the Indo-Malayan region. J. Bomb. N. H. Soc. vii, pp. 322-356, pls. H, I, J. [*Lepidoptera*.]
639. NICOLAS, H. Les *Hymenoptères* et leurs parasites. Échange, 1890 & 1891, pp. 189, &c., &c.
640. —. Observations entomologiques et autres faits au sommet du Mont Ventoux. C.R. Ass. Fr. Sci. xx, pt. 2, pp. 566-571. [*Hymenoptera*.]  
Effects on *Osmia* of transplanting it to summit.
641. NOLAN, E. J. The introduction of the *Ailanthus* Silkworm Moth. Ent. News, iii, pp. 193-195. [*Lepidoptera*.]
642. NONFRIED, A. F. Neue afrikanische, central-amerikanische und ost-asiatische *Melolonthiden* und *Ruteliden*. Berl. Ent. Zeit. xxxvi, pp. 221-240. [*Coleoptera*.]
643. —. Verzeichniss der *Rutelide* beschrieben nach der Herausgabe des Münchener Kataloges. T. c. pp. 347-358 & 449-454. [*Coleoptera*.]

644. [NONFRIED, A. F.] Weitere Beiträge zur Käferfauna von Süd-asien und Neu-guinea. Berl. Ent. Zeit. xxxvi, pp. 359-380. [*Coleoptera*.]
645. —. Monographische Uebersicht der *Prioniden*-gattung *Callipogon*, Serv. *Op. cit.* xxxvii, pp. 17-24, pl. iii. [*Coleoptera*.]
646. —. Verzeichniss der seit 1871 neu beschriebenen *Glaphyriden*, *Melolonthiden* und *Euchiriden*. *T. c.* pp. 249-290. [*Coleoptera*.]
647. —. Verzeichniss der um Nienghali in Südchina gesammelten *Lucanoiden*, *Scarabæiden*, *Buprestiden* und *Cerambyciden*, nebst Beschreibung neuer Arten. Ent. Nachr. xviii, pp. 81-95. [*Coleoptera*.]
648. —. Beiträge zur *Coleopteren*-fauna von Africa und Madagascar. *T. c.* pp. 105-111, 117-126, & 136-141.
649. NUNNEY, W. H. The British *Perlidae* or Stone-flies. Sci. Goss. 1892, p. 35, &c.
650. OBERTHUR, C. Études d'entomologie. Faunes entomologiques. Descriptions d'insectes nouveaux ou peu connus. 16<sup>me</sup> Livraison, pp. x & 9, pls. i & ii. [*Lepidoptera*.]
651. —. Étude sur une collection de *Lépidoptères* formée sur la côte de Malabar et à Ceylan par M. Emile Deschamps. Mém. Soc. Zool. v, pp. 237-252.  
Some notes on metamorphoses.
652. OLIVIER, E. *Lampyrides* rapportés de Birmanie par M. L. Fea, avec descriptions des espèces nouvelles. Ann. Mus. Genov. (2) x, pp. 595-604. [*Coleoptera*.]
653. —. Descriptions de deux nouvelles espèces du genre *Luciola*. *T. c.* pp. 1010 & 1011. [*Coleoptera*.]
654. OLLIFF, A. S. Further remarks on the saltbush Scale (*Pulvinaria maskelli*, Oll.). Agric. Gaz. N.S.W. iii, pp. 176-180. [*Coccidæ-Lepidoptera*.]
655. —. A new *Longicorn* Beetle attacking Orange trees. *T. c.* pp. 895-897, pl. lvii. [*Coleoptera*.]
656. ORMEROD, E. A. Report of observations of injurious insects and common farm pests, with special report on attack of Caterpillars of the Diamond-back Moth, during the year 1891, with methods of prevention and remedy. Fifteenth Report. London: 1892, 8vo, pp. vi & 170.
657. OSBORN, H. Insects of the Season in Iowa. Bull. Dep. Agric. Ent. xxvi, pp. 57-62.  
— [See also BRUNER, COQUILLET, & OSBORN (136).]
659. OSTEN-SACKEN, C. R. Second notice on the *Apiocerina*. Berl. Ent. Zeit. xxxvi, pp. 311-315. [*Diptera*.]

660. [OSTEN-SACKEN, C. R.] Synopsis of the described genera and species of the *Blepharoceridæ*. *T. c.* pp. 407-411. [*Diptera*.]
661. —. On the Chætotaxy of *Caccoxenus indagator*, Lw. *T. c.* pp. 411 & 412. [*Diptera*.]
662. —. Synonymy of *Antocha*, O.-S., and *Orimargula*, Mik. *T. c.* pp. 413-416. [*Diptera*.]
663. —. Additions and corrections to the Catalogue of the described species of South-American *Asilidæ*, by S. W. Williston. *T. c.* pp. 417-428. [*Diptera*.]
664. OUDEMANS, J. T. Het prepareeren van Rupsen. *Tijdschr. Ent.* xxxv, pp. 27-30, pl. ii. [*Lepidoptera*.]
665. PACKARD, A. S. On the scale-like and flattened hairs of certain *Lepidopterous* larvæ. *Ann. N. H.* (6) ix, pp. 372-375.
666. —. On the larva of *Lagoa*, a Bombycine Caterpillar with seven pairs of abdominal legs; with notes on its metameric glandular abdominal processes. *Zool. Anz.* xv, pp. 229-234. [*Lepidoptera*.]
667. PAGENSTECHER, A. Ueber einige neue arten des *Pyraliden* genus *Tetraphana*, Ragonot. *Deutsche e. Z. Lep.* v, pp. 1-4. [*Lepidoptera*.]
668. —. Ueber die Familie der *Siculiden*. *T. c.* pp. 5-131. [*Lepidoptera*.]  
Summary and statistics by SEITZ, S. E. *Z.* liii, pp. 155 & 156.
669. —. Nachträge über die Familie der *Siculiden*. *T. c.* pp. 443-449. [*Lepidoptera*.]
670. PATTON, W. H. Notes upon *Larradæ*. *Ent. News*, iii, pp. 89 & 90. [*Hymenoptera*.]
671. PERGANDE, T. Peculiar habit of *Ammophila gryphus*, Sm. *P. E. Soc. Wash.* ii, pp. 256-258. [*Hymenoptera*.]
672. PÉRINGUEY, L. Third contribution to the South African *Coleopterous* Fauna. *Tr. S. African Phil. Soc.* vi, part 2, pp. 1-94.
673. —. Fourth contribution to the South African *Coleopterous* Fauna. Description of new *Coleoptera* in the South African Museum. *T. c.* pp. 95-134.
674. PERKINS, R. C. L. Stylopized Bees. *Ent. M. M.* xxviii, pp. 1-4.
675. PETERSEN, W. Die Entwicklung des Schmetterlings nach dem Verlassen der Puppenhülle. *Deutsche e. Z. Lep.* iv, pp. 199-214. [*Lepidoptera*.]
676. —. Ueber die Ungleichzeitigkeit in der Erscheinung der Geschlechter bei Schmetterlingen. *Zool. Jahrb. Syst.* vi, pp. 671-679. [*Lepidoptera*.]

677. PIC, M. *Cortodera reitteri*, n. sp. Échange, 1891, No. 78, p. 43. [Coleoptera.]
678. —. Descriptions et corrections. *Op. cit.* 1892, p. 4. [Coleoptera.]
679. —. Petite étude sur le genre *Stenopterus*, Steph. *T. c.* pp. 21-23. [Coleoptera.]
680. —. Contributions à l'Étude des *Anthicidés* d'Algérie. *T. c.* p. 102. [Coleoptera.]
681. —. *Conizonia leprieuri*, n. sp. Bull. Soc. Ent. Fr. lxi, p. lii. [Coleoptera.]
682. —. *Anthicus chobauti*, n. sp. *T. c.* p. lxxv. [Coleoptera.]
683. —. *Delagrangeus*, n. gen. *T. c.* pp. xciii & xciv. [Coleoptera.]
684. —. Descriptions de *Coléoptères*. *T. c.* pp. cxvii-cxviii.
685. —. Description de deux *Anthicus* nouveaux. *T. c.* p. cxxi. [Coleoptera.]
686. —. Diagnoses de *Polyarthron* nouveaux. *T. c.* pp. cclix & cclx. [Coleoptera.]
687. —. Descriptions de nouveaux *Anthicus*. *T. c.* pp. cclxviii-cclxxii. [Coleoptera.]
688. —. Voyage de M. Charles Delagrange dans la Haute-Syrie. *Longicornes*. Ann. Soc. Ent. Fr. lxi, pp. 413-416. [Coleoptera.]
689. —. *Anthicidés* recueillis en Algérie en avril et mai 1892. Rev. Sci. Bourb. v, pp. 212-220. [Coleoptera.]
690. —. Sur les *Tomoderus*, Laf. *T. c.* pp. 240-242. [Coleoptera.]
691. —. Descriptions de *Longicornes* d'Algérie. Abeille, xxvii, pp. 289 & 290. [Coleoptera.]
692. PICTET, A., & SAUSSURE, H. DE. Iconographie de quelques Sauterelles vertes. Geneva : 1892, 4to, 26 pp., 3 pls. [Orthoptera.]
693. PLATEAU, F. Une forme spéciale de Colonies temporaires de *Coccinella septempunctata*. Ann. Ent. Belg. xxxvi, pp. 393-396. [Coleoptera.]
694. —. Les chenilles carnassières. Le Nat. 1892, pp. 71 & 72. [Lepidoptera.]
695. —. La ressemblance protectrice dans le règne animal. Bull. Ac. Belg. (3) xxiii, pp. 89-135.
696. POLL, J. R. H. N. VAN DE. Contributions à la Faune Indo-Chinoise. 9<sup>e</sup> Mémoire. *Buprestidæ*. Ann. Soc. Ent. Fr. lxi, pp. 17-26. [Coleoptera.]
697. —. On new or little-known Australian *Longicornia*. I. Tijdschr. Ent. xxxiv, pp. 219-228, pl. xiii. [Coleoptera.]

698. PORTSCHINSKY, J. Biologie des mouches coprophagues et nécrophagues. Première partie. Hor. Ent. Ross. xxvi, pp. 63-131. [*Diptera*.]  
Entirely in the Russian language.
699. —. *Diptera europæa et asiatica nova aut minus cognita*. *T. c.* pp. 201-227, pl. i.  
In the Russian language, but with Latin diagnoses.
700. —. *Lepidopterorum Rossiaë biologia*. III. Coloration marquante et taches ocellées, leur origine et leur développement. Suite. *T. c.* pp. 258-411, pls. ii & iii.  
Entirely in Russian.
701. POSTANS, R. B. Butterflies. Tr. Eastbourne Soc. (n.s.) ii, pp. 259-292, pl.  
Interesting considerations of a popular character.
702. POUJADE, G. A. Collection d'insectes formée dans l'Indo-Chine par M. Pavie, Consul de France au Cambodge. *Lépidoptères*. N. Arch. Mus. (3) iii, pp. 255-276, pl. xi.
703. POULTON, E. B. Further experiments upon the colour-relation between certain *Lepidopterous* larvæ, pupæ, cocoons, and imagines and their surroundings. Tr. Ent. Soc. 1892, pp. 293-487, pls. xiv & xv.
704. PRATT, A. E. To the Snows of Tibet through China. London: 8vo.  
Includes information as to localities of several Chinese *Lepidoptera*.
705. PROCHÁZKA, J. Revision der Arten der *Coleopteren*-Gattung. *Hapalus*, Fabr. Wien. ent. Z. xi, pp. 263-270.
706. PÜNGELE, R. Ueber zwei *Psychiden*-Arten aus Sizilien. Deutsche e. Z. Lep. v, pp. 133-140. [*Lepidoptera*.]
707. PUTON, A. Descriptions de trois *Hémiptères* nouveaux. Rev. d'Ent. xi, pp. 71 & 72.
708. —. *Hémiptères* nouveaux ou peu connus. *T. c.* pp. 24-36.
709. RAFFRAY, A. Recherches Anatomiques sur le *Pentaplatarthus paussoides*. Coléoptère de la famille des *Paussides*. N. Arch. Mus. (3) iv, pp. 91-102, pl. xiii.
710. — & BOLIVAR, I. Étude sur les Arthropodes cavernicoles de l'île de Luzon. Ann. Soc. Ent. Fr. lxi, pp. 27-34, pl. i. [*Coleoptera*, *Orthoptera*.]
711. RAGONOT, E. L. Trois espèces inédites de *Microlépidoptères*. Bull. Soc. Ent. Fr. lxi, p. lxxxii.
712. —. Diagnoses d'un genre nouveau et de deux espèces nouvelles de *Phycites*. *T. c.* pp. ccxxxv & ccxxxvi. [*Lepidoptera*.]  
— [See also STAUDINGER (890).]

713. RATH, O. VOM. Zur Kenntniss der Spermatogenese von *Gryllotalpa vulgaris*. Arch. mikr. Anat. xl, pp. 102-132, pl. v. [*Orthoptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 781.
714. REBEL, H. Zwei *Geometriden*-Classificationen. S. E. Z. liii, pp. 247-268. [*Lepidoptera*.]  
Meyrick's & Gumpfenberg's. Some points in the work of the former are much objected to; he considers it a matter for surprise that Gumpfenberg's work should be published by a great Society.
715. —. Beitrag zur *Microlepidopteren*-fauna des canarischen Archipels. Ann. Hofmuseum Wien, vii, pp. 241-284, pl. xvii.
716. —. Beitrag zur *Lepidopteren*-fauna Südtirols, insbesondere der Umgebung Bozens. Verh. z.-b. Wien, xlii, pp. 509-536.
717. REDTENBACHER, J. Monographische Uebersicht der *Mecopodiden*. T. c. pp. 183-224, pl. iii. [*Orthoptera*.]  
— [See also BRUNNER & REDTENBACHER (138).]
718. REED, E. C. Entomología Chilena, sinonimia. Act. Soc. Chili, i, pp. 66-69. [*Lepidoptera*, *Diptera*.]
719. —. Revision de las Abejas Chilenas descritas en la obra de Gay. Op. cit. ii, pp. 223-240. [*Hymenoptera*.]
720. RÉGIMBART, M. Énumération des *Dytiscidæ* et *Gyrinidæ* recueillis par M. Leonardo Fea, dans les voyages en Birmanie et régions voisines. Ann. Mus. Genov. (2) x, pp. 536-554. [*Coleoptera*.]
721. —. Viaggio di Lamberto Loria nella Papuasie orientale. iv *Halipidæ*, *Dytiscidæ*, et *Gyrinidæ*. T. c. pp. 978-997. [*Coleoptera*.]
722. —. Description de deux *Hydrocoptus* (*Dytiscidæ*) nouveaux. Notes Leyd. Mus. xiv, pp. 11 & 12. [*Coleoptera*.]
723. —. Insectes du Bengale occidental. *Hydrocanthares*. Ann. Ent. Belg. xxxvi, pp. 112-121. [*Coleoptera*.]
724. REITTER, E. *Coleopterologische* Notizen. Wien. ent. Z. xi, pp. 25, &c.
725. —. Fünfter Beitrag zur *Coleopteren*-fauna des russischen Reiches. T. c. pp. 59-68. Sechster Beitrag, t. c. pp. 133-135. Siebenter Beitrag, t. c. pp. 151-154.
726. —. Ueber die Arten der *Coleopteren*-Gattung *Leptodes*, Sol. T. c. pp. 93-96.
727. —. Ueber eine *Lasiopsis*-Art aus dem Kaukasus. T. c. p. 101. [*Coleoptera*.]
728. —. Uebersicht der bekannten Arten der *Coleopteren*-Gattung *Apotomus*, Ill., aus der paläarktischen Fauna. T. c. pp. 137 & 138.
729. —. Uebersicht der Arten der *Coleopteren*-Gattung *Monotropus*, Er. T. c. p. 142.

730. REUTER, O. M. *Hemiptera Heteroptera* från trakterna Kring Sajanska bärgskedjan. *Öfv. Finska Förh.* xxxiii, pp. 166–208.
731. —. Voyage de M. E. Simon au Venezuela. *Hemiptères-Hétéroptères*. 1<sup>re</sup> partie. *Capsides*. *Ann. Soc. Ent. Fr.* lxi, pp. 391–402.
732. —. A new species of *Helopeltis*. *Ent. M. M.* xxviii, p. 159 [*Rhynchota*.]
733. —. Species *Capsidarum* et *Anthocoridarum madagascarienses*, descriptis. *T. c.* pp. 185–187. [*Rhynchota*.]
734. —. *Podurider* från nordvestra Sibirien. *Öfv. Finska Förh.* xxxiii, pp. 226–229. [*Thysanura*.]
735. REY, C. Remarques en passant. *Échange i*, No. 17, &c., &c.
- It is not possible to treat the names mentioned in this series of papers as representing new forms, though many of them are probably thought to do so by their author.
736. —. Description d'une nouvelle espèce de *Curculionide*. *Op. cit.* 1888, No. 45, p. 4. [*Coleoptera*.]
737. RIBBE, C. Anleitung zum Käfersammeln in tropischen Ländern. *Berl. Ent. Zeit.* xxxvii, pp. 125–138.
738. RICHARDSON, N. M. On a case of apparent substitution of a wing for a leg in a Moth. *P. Dorset Club*, xi, pp. 64–73. [*Lepidoptera*.]
739. —. On some of the chief peculiarities in the *Lepidopterous* fauna of Portland. *T. c.* pp. 46–63, pl.
740. —. Notes on Dorset *Lepidoptera* in 1891. *Op. cit.* xiii, pp. 168–177, pl.
741. RILEY, C. V. Some interrelations of plants and insects. *P. Biol. Soc. Washington*, vii, pp. 81–104.
742. —. On certain peculiar structures of *Lepidoptera*. *P. E. Soc. Wash.* ii, pp. 305–312.
743. —. New species of *Prodoxide*. *T. c.* pp. 312–319. [*Lepidoptera*.]
744. —. Rose Sawflies in the United States. *Ins. Life*, v, pp. 6–11. [*Hymenoptera*.]
745. —. The larger Digger-wasp. *Op. cit.* iv, pp. 248–252. [*Hymenoptera*.]
746. —. On the larva and some peculiarities of the cocoon of *Sphecius speciosus*. *P. E. Soc. Wash.* ii, pp. 170–172. [*Hymenoptera*.]
747. —. A probable *Microgaster* parasite of *Eleodes* in the perfect state. *T. c.* p. 211. [*Hymenoptera*.]
748. —. Mexican Jumping Bean: the determination of the plant. *T. c.* pp. 178–181. [*Lepidoptera*.]

749. [RILEY, C. V.] Further note on *Carpocapsa saltitans* and on a new *Grapholitha* producing Jumping Beans. P. E. Soc. Wash. ii, pp. 213 & 214. [*Lepidoptera*.]
750. —. *Coleopterous* larvæ with so-called dorsal pro-legs. *T. c.* pp. 319–323.
751. —. The first larval or post-embryonic stage of the Pea and Bean Weevils. *Canad. Ent.* xxiv, pp. 185 & 186. [*Coleoptera*.]
752. —. On the nomenclature and on the oviposition of the Bean Weevil. *Ins. Life*, v, pp. 27–33. [*Coleoptera*.]
753. —. The Ox Bot in the United States. Habits and Natural History of *Hypoderma lineata*. *Op. cit.* iv, pp. 302–317. [*Diptera*.]
754. —. The Pea and Bean Weevils. *T. c.* pp. 297–302. [*Coleoptera*.]
755. RIPPON, R. H. F. *Icones Ornithopterorum*. Pt. v. London: 1892. [*Lepidoptera*.]
756. —. Description of a new species of *Ornithoptera*, of the *priamus* group, in the collection of the Hon. L. Walter Rothschild. *Ann. N. H.* (6) x, pp. 193–196. [*Lepidoptera*.]
757. RITSEMA, C. The genus *Helota*, as represented in the Civic Museum of Natural History at Genoa, with descriptions of the new species collected in Burma by Mr. L. Fea. *Ann. Mus. Genov.* (2) x, pp. 885–902. [*Coleoptera*.]
758. —. Description of a new species of the *Lucanoid* genus *Cyclommatus*, and list of the described species. *Notes Leyd. Mus.* xiv, pp. 1–6. [*Coleoptera*.]
759. —. A new *Lucanoid* Beetle from Java. *T. c.* p. 31. [*Coleoptera*.]
760. —. A new *Longicorn* Beetle. *T. c.* p. 38. [*Coleoptera*.]
761. —. *Cyclommatus squamosus*, a new species of *Lucanid* from Borneo. *T. c.* p. 54. [*Coleoptera*.]
762. —. *Prosopocelus tarsalis*, a new *Lucanid*. *T. c.* p. 191. [*Coleoptera*.]
763. —. Three new species of the *Longicorn* genus *Pachyteria*. *T. c.* pp. 213–220. [*Coleoptera*.]
764. —. Two new species of the *Longicorn* genus *Glenea*. *T. c.* xiv, pp. 221–224. [*Coleoptera*.]
765. ROBBE, H. *Insectes du Bengale occidental*. Liste d'une collection de *Lépidoptères* recueillis au Bengale occidental; avec une description d'une variété nouvelle et quelques considérations sur des espèces connues. *Ann. Ent. Belg.* xxxvi, pp. 122–131.
766. —. *Lépidoptères* du Congo. Description de deux nouvelles espèces et de deux nouvelles variétés. *T. c.* pp. 132–134.

767. RÖBER, J. Beitrag zur Kenntniss der Indo-australischen *Lepidopteren*-fauna. Tijdschr. Ent. xxxiv, pp. 261-334.

There are plates to this memoir that appear, unfortunately, only in the next volume.

768. ROBERTSON, C. Descriptions of new North-American Bees. Am. Nat. xxvi, pp. 267-274. [*Hymenoptera*.]
769. RÖDER, V. v. Ueber die *Dipteren*-Gattung *Lyroneurus*, Löw, nebst Beschreibung einer neuen Art. Soc. Ent. vii, p. 81.
770. —. *Brachyceræa* novum genus *Conopidarum*. Ent. Nachr. xviii, p. 366. [*Diptera*.]
771. —. Drei neue *Dipteren*, aus der Sendung des Herrn Baron von Müller, in Melbourne, an das Königliche Naturalien-Cabinet in Stuttgart. S. E. Z. liii, pp. 241-244.
772. ROELOFS, W. Description d'une espèce nouvelle du genre *Eugithopus*. Notes Leyd. Mus. xiv, p. 7. [*Coleoptera*.]
773. —. Observations sur les espèces du genre *Oxyopisthen* et des genres voisins. T. c. pp. 33-37. [*Coleoptera*.]
774. —. Description de deux nouvelles espèces du genre *Onychogymnus*. T. c. pp. 49-53. [*Coleoptera*.]
775. —. Description d'un nouveau genre et d'une nouvelle espèce de *Curculionides* de la tribu des *Ulomascides*. T. c. pp. 136-138. [*Coleoptera*.]
776. —. Deux nouveaux genres et deux nouvelles espèces du groupe des *Rhynchophorides*. T. c. pp. 207-212. [*Coleoptera*.]
777. ROGENHOFER, A. F. Ueber die taschenförmigen Hinterleibs-Anhänge der weiblichen Schmetterlinge der *Acræiden*. Verh. z.-b. Wien, xlii, pp. 579-581. [*Lepidoptera*.]
778. —. Neue *Lepidopteren* des k. k. naturhistorischen Hofmuseums. T. c. pp. 571-575.
779. ROMANOFF, N. M. Mémoires sur les *Lépidoptères*. Tome vi. St. Pétersbourg : 1892, 8vo, 770 pp., 16 pls.
- The contents are:—1. ALPHÉRAKY, S.: *Lépidoptères* rapportés de la Chine et de la Mongolie par G. N. Potanine; pp. 1-81, pls. i-iii. 2. STAUDINGER, O.: Die Macrolépidopteren des Amurgebiets; i Theil, *Rhopalocera*, *Sphinges*, *Bombyces*, *Noctuæ*, pp. 83-658, pls. iv-xiv. 3. STANDFUSS, M.: *Lepidopterologisches*; pp. 659-669, pl. xv. 4. ERSCHOFF, N.: Verzeichniss von Schmetterlingen aus Central-Sibirien; pp. 670-672, pl. xvi.
780. ROST, —. *Plectes polychrous*, n. sp., &c. Deutsche e. Z. 1892, pp. 401 & 402. [*Coleoptera*.]
781. ROSTOCK, M. *Capnodes schilleri*, eine neue deutsche *Perliden*. Berl. Ent. Zeit. xxxvii, pp. 1-5, pl. i. [*Neuroptera*.]

782. ROTHSCHILD, W. On a little-known species of *Papilio* from the Island of Lifu, Loyalty group. Tr. E. Soc. 1892, p. 141, pl. iv. [*Lepidoptera*.]
783. —. Notes on a collection of *Lepidoptera* made by William Doherty in Southern Celebes, during August and September, 1891. Part I. *Rhopalocera*. Deutsche e. Z. Lep. v, pp. 429-442.
- [See also BUTLER & ROTHSCHILD (147).]
784. RÜBSAAMEN, E. H. Mittheilungen über Gallmücken. Verh. z.-b. Ges. Wien, xlii, pl. ii. [*Diptera*.]
785. —. Ueber Gallmückenlarven. Berl. Ent. Zeit. xxxvi, pp. 381-392, pl. xiv. [*Diptera*.]
786. —. Neue Gallmücken und Gallen. T. c. pp. 393-406. [*Diptera*.]
787. —. Die Gallmücken des Königl. Museums für Naturkunde zu Berlin. Op. cit. xxxvii, pp. 319-411, pls. vii-xviii. [*Diptera*.]
788. RUGE, —. *Tetracha horni*, n. sp. Deutsche e. Z. 1892, p. 130. [*Coleoptera*.]
789. RÜHL, F. Die palæarktischen Gross-schmetterlinge und ihre Naturgeschichte. Leipzig : 8vo.
- To be completed in 75 parts ; the first is published.
790. —. Neue europäische *Dasypolien*. Soc. Ent. vi, pp. 169 & 170. [*Lepidoptera*.]
- SALVIN, O. [See GODMAN & SALVIN (347).]
791. SANGAGLI, G. Echinococco ed Estrus nell'uomon. Rend. Ist. Lombardo (2) xxv, pp. 1167-1178. [*Diptera*.]
792. SAUNDERS, E. The *Hemiptera-Heteroptera* of the British Islands. London : 8vo, vi & 350 pp., 32 pls.
793. SAUSSURE, H. DE. Histoire naturelle des *Hymenoptères*. Histoire physique, naturelle et politique de Madagascar, publiée par Alfred Grandidier. Vol. xx, première partie, pp. 177-590, pls. xxi-xxvii.
- Completes the part, the antecedent portion having been recorded last year. The *parasitica* are not described, though figured on the plates.
794. —. *Orthoptera Centrali-Americana*. Soc. Ent. vii, pp. 121-124.
795. —. Note supplémentaire à la Synopsis de la tribu des *Sagiens*, *Orthoptères* de la famille des *Locustides*. Ann. Soc. Ent. Fr. lxi, pp. 5-16.
- [See also DISTANT (210) and PICTET & DE SAUSSURE (692).]
796. SAWTSCHENKO, J. Die Beziehung der Fliegen zur Verbreitung der Cholera. CB. Bakt. Parasit. xii, pp. 893-898.
797. SCHÄFF, —. Ueber Insektenreste aus dem Torflager von Klinge, SB. Ges. Naturf. Berl. 1892, pp. 8-11.
1892. [VOL. XXIX.]

798. SCHAUS, W., JUN. American *Lepidoptera*; illustrations of new and rare species. Part I, pp. 1-24, pls. i-iii. London: 1892, 4to.

799. —. Descriptions of new species of *Lepidoptera Heterocera* from Brazil, Mexico, and Peru. P. Z. S. 1892. Part I, pp. 272-291; Part II, pp. 318-341.

Many of the species are figured in the preceding (798).

800. SCHLECHTENDAL, D. VON. Ueber das Vorkommen fossilen "Ruckenschwimmer" (*Notonecten*) im Braunkohlengebirge von Rott. Z. Naturw. lxx, pp. 141-143. [*Rhynchota*.]

801. SCHMIDT, J. Neue *Histeriden*. Ent. Nachr. xviii, pp. 17-29. [*Coleoptera*.]

802. —. Voyage de M. Ch. Alluaud dans le territoire d'Assinie (Afrique occidentale). *Histeride*. Ann. Soc. Ent. Fr. lxi, pp. 289-291. [*Coleoptera*.]

SCHMIEDCKNECHT, O. [See GRÄFFE (358).]

803. SCHULTESS-RECHBERG, A. v. *Tiphia picta* spec. nov. aus Bulgarien. MT. Schw. ent. Ges. viii, p. 384. [*Hymenoptera*.]

804. SCHWARZ, E. A. Entomological Club of American Association for the Advancement of Science—Annual Address of the President. Canad. Ent. xxiv, pp. 213-224.

A consideration of the present position of Coleopterology in N. America.

805. —. Note on *Phytobius*. P. Ent. Soc. Wash. ii, p. 165. [*Coleoptera*.]

806. —. Note on the Food-habits of some *Halticids*. T. c. pp. 182-184. [*Coleoptera*.]

807. —. Verdigris in *Coleoptera*. T. c. pp. 220-222.

808. —. Time of Flight in *Lachnosterna*. T. c. pp. 241-244. [*Coleoptera*.]

809. SCHWARZ, O. Revision der paläarktischen Arten der *Elateriden*-Gattung *Melanotus*, Esch. Deutsche e. Z. 1892, pp. 145-164. [*Coleoptera*.]

810. —. Neue *Cardiophorus*-Arten. T. c. pp. 383 & 384. [*Coleoptera*.]

811. —. *Spheniscosomus*, eine neue, bisher verkannte *Elateriden*-Gattung. Wien. ent. Z. xi, p. 132. [*Coleoptera*.]

812. SCUDDER, S. H. The songs of our Grasshoppers and Crickets. Rep. E. Soc. Ont. xxiii, pp. 62-78. [*Orthoptera*.]

813. —. New light on the formation of the abdominal pouch in *Parnassius*. Tr. Ent. Soc. 1892, pp. 249-253. [*Lepidoptera*.]

814. —. The Tertiary *Rhynchophora* in North America. P. Bost. Soc. xxv, pp. 370-386. [*Coleoptera*.]

815. [SCUDDER, S. H.] The services of Edward Burgess to Natural Science. P. Bost. Soc. xxv, pp. 358-364.
816. —. The *Orthopteran* genus *Hippiscus*. *Psyche*, vi, pp. 265-274, 285-288, 301-305, 317-320, 333-336, 347-350, & 359-363.
817. SEITZ, A. Reiseskizzen, I. Singapore. S. E. Z. liii, pp. 52-61. [*Lepidoptera*.]
818. —. Reiseskizzen, II. Lantana. *T. c.* pp. 228-238. [*Lepidoptera*.]  
Concerns the attractiveness of Lantana bush to insects in the East.
819. —. Mittheilungen über Mimicry. *Verh. deutsch. Zool. Ges.* i, 1891, pp. 49-53. [*Lepidoptera*.]
820. —. Mittheilungen von einer Reise nach China und Japan. *Op. cit.* 1892, pp. 14-18.
821. —. Eine zoologische Excursion in die Umgegend von Shanghai. *JB. nass. Ver.* xlv, pp. 41-48.
822. —. Eine entomologische Excursion in die Umgebung von Hiogo. *T. c.* pp. 51-61.
823. —. Ein Ausflug in die Umgebung von Nagasaki. *Ent. Nachr.* xviii, pp. 49-54.
824. SELYS-LONGCHAMPS, E. DE. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXII. *Odonates*. *Ann. Mus. Genov.* (2) x, pp. 433-518. [*Neuroptera*.]
825. —. Causeries *Odonatologiques*. No. 6, Les *Gomphines* d'Afrique. *Ann. Ent. Belg.* xxxvi, pp. 86-107. [*Neuroptera*.]
826. —. Apparition accidentelle de la *Mantis religiosa* et de quelques autres insectes en Belgique. *T. c.* pp. 495-503.
827. SEMENOW, A. De genre *Pseudochrysis* m. *Hor. Ent. Ross.* xxvi, pp. 480-491. [*Hymenoptera*.]
828. —. Revisio *Hymenopterorum* Musei Zoologici Academiæ Cæsareæ scientiarum Petropolitanae. I. Genus *Cleptes*, Latr. *Bull. Petersb.* (n.s.) ii, pp. 497-504. II. Genus *Abia*, Leach; *t. c.* pp. 509-517. III. *Evaniidæ*; *op. cit.* iii, pp. 9-30.
829. —. *Chrysididarum* species novæ. *Bull. Petersb.* (n.s.) iii, pp. 71-95. [*Hymenoptera*.]
830. —. Note sur la subdivision du genre *Lethrus*, Scop., et description de deux espèces nouvelles. *Hor. Ent. Ross.* xxvi, pp. 232-244. [*Coleoptera*.]
831. —. De *Brenthidarum* genere novo palæarctico. *T. c.* pp. 438-443. [*Coleoptera*.]
832. —. Conspectus specierum generis *Glaresis*, Er. *T. c.* pp. 468-470. [*Coleoptera*.]

833. [SEMENOW, A.] Notæ breves de quibusdam *Melolonthides*. Hor. Ent. Ross. xxvi, pp. 471-476. [*Coleoptera*.]
834. —. Generis *Glaphyrus*, Latr., species nova rossica. *T. c.* pp. 477-479. [*Coleoptera*.]
835. SEMPER, G. Reisen im Archipel der Philippinen von Dr. C. Semper. Zweiter Theil. Wissenschaftliche Resultate. Fünfter Band. Die Schmetterlinge der Philippinischen Inseln. Beitrag zur Indo-Malayischen *Lepidopteren*-fauna. Erste Abtheilung, Die Tagfalter. *Rhopalocera*, part VIII, pp. 271-380, pls. xlvii-xlix.
- This part completes the volume, which has a second title page as follows: Die Schmetterlinge der Philippinischen Inseln: Beitrag zur Indo-Malayischen *Lepidopteren*-fauna. von Georg Semper. Erster Band: Die Tagfalter. *Rhopalocera*.
836. SÉNAC, H. Note sur les *Pimelia* des îles Canaries. Ann. Soc. Ent. Fr. lxi, pp. 103-108. [*Coleoptera*.]
837. SENNA, A. Contributions to the knowledge of the family *Brentidae*. VIII. Enumeration of the species known as yet from Java. Notes Leyd. Mus. xiv, pp. 161-186. [*Coleoptera*.]
838. —. Contribuzioni allo studio dei *Brentidi*. Nota ix, Bull. Ent. Ital. xxiv, pp. 26-37. Nota x, *t. c.* pp. 38-63. Nota xii, *t. c.* pp. 152-163. [*Coleoptera*.]
839. —. Viaggio di Leonarda Fea in Birmania e regioni vicine. XLV. *Brentidi*. Ann. Mus. Genov. (2) xii, pp. 429-494. [*Coleoptera*.]
840. SERGI, G. Ricerche su alcuni organi di senso nelle antenne delle Formiche. Bull. Ent. Ital. xxiv, pp. 18-25. [*Hymenoptera*.]
- Summary in J. R. Micr. Soc. 1892, p. 780.
841. SEVERIN, G. Les collections d'Articulés du Musée royal d'histoire naturelle de Belgique. Ann. Ent. Belg. xxxvi, pp. 469-478. [*Coleoptera*.]
842. SHARP, D. On some Eggs of *Hemiptera*. Tr. E. Soc. 1892, pp. 191-199, pls. viii & ix.
843. —. Descriptions of two new *Pselaphidae* found by Mr. J. J. Walker in Australia and China. Ent. M. M. xxviii, pp. 240-242. [*Coleoptera*.]
844. —. A new species of the *Staphylinid* genus *Trygæus*. Notes Leyd. Mus. xiv, p. 61. [*Coleoptera*.]
845. —. Entomological Pins. Ent. xxv, pp. 54-57 & 119.  
— [See also BRUNNER & REDTENBACHER (138).]
846. SICARD, A. J. Weise: Bestimmungs-Tabellen der europäischen *Coleopteren*: fasc. II, 2<sup>e</sup> edition. Traduction complète, due en grande partie à M. le Dr. A. Sicard, médecin aide-major de 1<sup>re</sup> classe, et accompagnée de diverses notes inédites, signées chacune du nom de leur auteur. Abeille, xxviii, pp. 1-80 (still incomplete). [*Coleoptera*.]

847. SKINNER, H. A new species of *Pamphila*. Ent. News, iii, p. 174, [*Lepidoptera*.]
848. —. A new *Pamphila*. T. c. p. 222. [*Lepidoptera*.]
849. —. A new species of *Eudamus*. Canad. Ent. xxiv, p. 164. [*Lepidoptera*.]
850. SKINNER, H., & MENGEL, L. W. Greenland *Lepidoptera*. P. Ac. Philad. 1892, pp. 156-159.
851. SLINGERLAND, M. V. The Pearl-tree *Psylla*. Bull. Cornell Univ. xlv, pp. 161-186. [*Rhynchota*.]
852. SLOANE, T. G. Descriptions of two new species of *Carenum* from West Australia, with notes of the synonymy and distribution of some previously described species. P. Linn. Soc. N.S.W. (2) vi, pp. 427-429. [*Coleoptera*.]
853. —. Studies in Australian Entomology. No. v. Notes on the subfamily *Broscini* (*Carabidæ*), with descriptions of new species. Op. cit. vii, pp. 45-64. [*Coleoptera*.]
854. SLOSSON, A. T. A new *Arctia*. Ent. News, iii, p. 257. [*Lepidoptera*.]
855. —. A new *Dasylophia* from Florida. Canad. Ent. xxiv, p. 139. [*Lepidoptera*.]
856. SMIRENSKY, A. Ueber schädliche Insekten der Umgebung von Kazan. Trudui Kazan. Univ. xxiii, No. 4, pp. 1-18.  
In the Russian language.
857. SMITH, H. G. Descriptions of three new species of Butterflies captured by Mr. D. Cator in British North Borneo, in the Collection of Mr. Grose Smith. Ann. N. H. (6) x, pp. 426-428. [*Lepidoptera*.]
858. SMITH, H. G., & KIRBY, W. F. *Rhopalocera exotica*. Pts. 19-22.  
Vol. I was completed by Part 20. It is proposed to continue the work for several vols.
859. SMITH, J. B. List of *Lepidoptera* of Boreal America. American Entomological Society, 1891, 8vo, 124 pp.  
A list of 6020 names. For corrections, &c., see DYAR, Canad. Ent. xxiv, pp. 47 & 48, and SMITH, t. c. p. 103.
860. —. Synonymical notes on some *Heterocera* in the British Museum. Canad. Ent. xxiv, pp. 133-136. [*Lepidoptera*.]
861. —. New species of *Noctuidæ*. Ent. News, iii, pp. 250-253, pl. x. [*Lepidoptera*.]
862. —. Note on generic characters in the *Noctuidæ*. Ent. xxv, pp. 101-105. [*Lepidoptera*.]
863. —. Mr. Butler's Notes on Synonymy of North American *Noctuidæ*. T. c. p. 2. [*Lepidoptera*.]

864. [SMITH, J. B.] The Mouth of *Copris carolina* and Notes on the Homology of the Mandible. P. Am. Ass. xl, p. 324.
865. —. The Mouth Parts of *Copris carolina*, with Notes on the Homologies of the Mandibles. Tr. Am. Ent. Soc. xix, pp. 83-87, pls. ii & iii. [*Coleoptera.*]
866. —. Notes on the Homology of the *Hemipterous* Mouth. P. Am. Ass. xl, p. 325.
867. —. Contributions towards a Monograph of the *Noctuidæ* of Boreal America. Revision of the genus *Cucullia*; revision of the *Dicopineæ*; revision of *Xylomiges* and *Morrisonia*. P. U. S. Nat. Mus. xv, pp. 33-86, pls. ii & iii. [*Lepidoptera.*]
868. SMITH, T. J. Remarks on *Apis mellifica*, the Hive Bee. Rep. North Staffordsh. Club, xxvi, pp. 82-91.
869. SNELLEN, P. C. T. Aanteekeningen over eene verzameling *Lepidoptera* in October 1889, van het eiland Flores ontvangen. Tijdschr. Ent. xxxiv, pp. 229-256.
870. —. *Deudoryx verriculata*, n. sp. T. c. pp. 257-260.
871. —. *Euplæa perdita*, Butl. var. T. c. p. 339. [*Lepidoptera.*]
872. —. Aanteekeningen over *Lepidoptera* schadelijk voor het suikerriet. T. c. pp. 341-356, pls. xviii & xix.
- The species described and figured in this memoir appear to have been previously dealt with in an inaccessible work as follows:—
873. — — in Mededeelingen van het Proefstation voor Suikerriet in West Java; 1890, pp. 94, &c., pls. i & ii. [*Lepidoptera.*]
874. —. Aanteekeningen over Exotische *Lepidoptera*. Tijdschr. Ent. xxxv, pp. 1-23, pl. i.
875. —. Boekaankondiging. T. c. pp. 73-84. [*Lepidoptera.*]
- A review of the second part of Saalmüller's work on the *Lepidoptera* of Madagascar, and includes many synonyms and critical remarks.
876. —. Beschrijving van eenige nieuwe Javaansche dagvlinders. T. c. pp. 133-144, pls. iii & iv (incomplete). [*Lepidoptera.*]
877. SNOW, W. A. Notes and descriptions of *Syrphidæ*. Kansas Quart. i, pp. 33-38, pl. vii. [*Diptera.*]
878. SONTTHONNAX, L. Description d'une *Saturnie* nouvelle de la Chine. Échange, 1892, p. 20. [*Lepidoptera.*]
879. SOUTH, R. Notes on British *Lepidoptera*. Ent. xxv, pp. 29-36, 86-93, & 134-138.

These notes relate to variation in several species.

880. —. The Entomological Club of London. T. c. pp. 4-9.

881. SPÜLER, A. Zur Phylogenie und Ontogenie des Flügelgeädters der Schmetterlinge. Z. wiss. Zool. liii, pp. 597-646, pls. xxv & xxvi. [*Lepidoptera*.]
- The neuration in the perfect insects of numerous forms, especially of *Tineidae*, is discussed, in addition to the phylogeny and to the condition in the pupal state. Summary in J. R. Micr. Soc. 1892, p. 469, and by SEITZ, S. E. Z. liii, pp. 238-241.
882. —. Zur Stammesgeschichte der *Papilioniden*. Zool. Jahrb. Syst. vi, pp. 465-498, pls. xxii & xxiii. [*Lepidoptera*.]
883. STADELMANN, H. Neue *Hymenopteren* der Zool. Sammlung des Kgl. Museums für Naturkunde zu Berlin. Berl. Ent. Zeit. xxxvii, pp. 235-240.
884. STANDFUSS, M. Ueber die Hybridation bei den Insekten. MT. Schw. ent. Ges. viii, pp. 386-396.
- [See also ROMANOFF (779).]
885. STAUDINGER, O. Neue afrikanische *Lycæniden*. Deutsche e. Z. Lep. iv, pp. 215-223. [*Lepidoptera*.]
886. —. Neue Arten und Varietäten von *Lepidopteren* des paläarktischen Faunengebiets. T. c. pp. 224-339.
887. —. Neue Arten und Varietäten von paläarktischen *Geometriden*. Op. cit. v, pp. 141-260. [*Lepidoptera*.]
888. —. Zwei neue *Charaxes*-Arten. T. c. pp. 260-263. [*Lepidoptera*.]
889. —. Ueber die Arten der *Palla Decius*-Gruppe. T. c. pp. 264-268. [*Lepidoptera*.]
890. —. *Lepidopteren* aus Tunis. T. c. pp. 277-300.
- Includes some descriptions by RAGONOT.
891. —. *Lepidopteren* des Kentei-Gebirges. T. c. pp. 300-393.
892. —. *Ornithoptera andromache*, n. sp. T. c. p. 393. [*Lepidoptera*.]
893. —. Neue *Papilio*-Formen aus Südamerika. T. c. pp. 427 & 428. [*Lepidoptera*.]
894. —. Einige neue *Rhopaloceren* aus Nord-Borneo. T. c. pp. 449-452. [*Lepidoptera*.]
- [See also ROMANOFF (779).]
895. STEIN, P. Die *Anthomyiden* der Fallen-Zetterstedt'schen Sammlung. Ent. Nachr. xviii, pp. 321-333. [*Diptera*.]
896. —. Drei neue merkwürdige *Homalomyia*-Arten. Wien. ent. Z. xi, pp. 69-77. [*Diptera*.]
897. STEINERT, H. Ueber das Auftreten von *Amphidasys betularius*, L., ab. *doubledayarius*, B., in Sachsen, mit Bemerkungen über die Zucht des Thieres. Deutsche e. Z. Lep. v, pp. 424-427. [*Lepidoptera*.]

998. STIERLIN, —. Due nuovi *Curculionidi* di Sicilia. *Nat. Sicil.* xi, p. 156. [*Coleoptera.*]
999. —. Beschreibung einiger neuen Rüsselkäfer. *MT. Schw. ent. Ges.* viii, pp. 357–366. [*Coleoptera.*]
1000. —. Beschreibung einiger neuen europ. Rüsselkäfer. *T. c.* pp. 408–412. [*Coleoptera.*]
1001. STILES, C. W. On the American intermediate host of *Echinorhynchus gigas*. *Zool. Anz.* xv, pp. 52–54. [*Coleoptera.*]  
Lamellicorn beetles of the genus *Lachnosterna*.
1002. STROBL, G. Die österreichischen Arten der Gattung *Hilara*, Meig. (Mit Berücksichtigung der Arten Deutschlands und der Schweiz.) *Verh. z.-b. Wien*, xlii, pp. 85–182. [*Diptera.*]
1003. —. Interessante österreichische *Dolichopoden*. *Wien. ent. Z.* xi, pp. 102–107. [*Diptera.*]
1004. —. Untersuchungen über die Gattung *Spania*, Meig. *T. c.* pp. 121–125. [*Diptera.*]
1005. —. Zwei alpine *Sapromyzen*. *T. c.* pp. 155 & 156. [*Diptera.*]
1006. —. Zur Kenntniss und Verbreitung der *Phoriden* Oesterreichs. *T. c.* pp. 193–204. [*Diptera.*]
1007. STUMMER-TRAUNFELS, R. R. v. Vergleichende Untersuchungen über die Mundwerkzeuge der *Thysanuren* und *Collembolen*. *SB. Ak. Wien. c.* Abth. i, pp. 216–234, pls. i & ii.  
Summary in *J. R. Micr. Soc.* 1892, p. 781.
1008. SWINHOE, C. Catalogue of Eastern and Australian *Lepidoptera Heterocera* in the collection of the Oxford University Museum. Part I. *Sphinges* and *Bombyces*. Oxford: viii & 324 pp., 8 pls.
1009. —. New species of *Heterocera* from the Khasia Hills. Part II. *Tr. E. Soc.* 1892, pp. 1–20, pl. i.
1010. —. Mimicry in Nature. *P. Croydon Club*, iii, pp. 332–341.
1011. SWIERSTRA, K. N. Een hermaphrodiet van *Aspilates strigillaria*. *Tijdschr. Ent.* xxxiv, p. 338, pl. xvii, fig. 3. [*Lepidoptera.*]
1012. TARGIONI-TOZZETTI, A. *Aonidia blanchardi*, specie nuova di *Cocciniglia* delle palme da dattero del Sahara. *Bull. Ent. Ital.* xxiv, pp. 170–188. [*Coccidæ.*]
1013. —. *Aonidia blanchardi*, nouvelle espèce de Cochenille du dattier du Sahara. *Mem. Soc. Zool.* v, pp. 69–82. [*Coccidæ.*]
1014. TARRAL, H. Observations sur les oothèques du *Stauronotus maroccanus*. *Bull. Soc. Béziers*, xii, pp. 10–13. [*Orthoptera.*]
1015. TASCHENBERG, O. Historische Entwicklung der Lehre von der Parthenogenesis. *Abh. Ges. Halle*, xvii, pp. 365–453.

916. TEPPER, J. G. O. The *Phaneropteridæ* of Australia and Polynesia. Tr. R. Soc. S. Austr. xv, pp. 77-113. [*Orthoptera*.]
917. —. The *Gryllacridæ* and *Stenopelmatidæ* of Australia and Polynesia. T. c. pp. 137-178. [*Orthoptera*.]
918. TETENS, H. Resultate der anatomischen Untersuchung eines lateralen Zwitters von *Smerinthus populi*. Berl. Ent. Zeit. xxxvi, pp. 457-466, pl. xiii. [*Lepidoptera*.]
919. THEOBALD, F. V. An account of British Flies (*Diptera*). Vol. I. London: 1892, 8vo, xix & 215 pp.  
Parts I-III were recorded last year.
920. —. Stylopized Bees. Ent. M. M. xxxviii, pp. 40-42.
921. THÉRY, A. Description de *Coléoptères*. Bull. Soc. Ent. Fr. lxi, p. xcvi.
922. —. Description d'un *Coléoptère* nouveau. T. c. p. cclviii.
923. THIERRY-MIEG, P. Descriptions de *Lépidoptères* nocturnes. Le Nat. 1892, pp. 216, 217, 235, 236, & 262.
924. THOMAS, F. Alpine Mückengallen. Verh. z.-b. Wien, xlii, pp. 356-376, pls. vi & vii. [*Diptera*.]
925. THOMAS, F. A. W. Beobachtungen über Mückengallen. Sep. from Wiss. Beilage z. Programme Gym. Gleichense Ohrdruf. pp. 1-16.  
Account of *Cecidomyiid* galls, arranged according to plants.
926. \*THOMAS, FR. Die Blattflohkrankheit der Lorbeerbaume. Gartenflora, xl, Heft. 2 & 3. [*Rhynchota*.]  
Cf. Wien. ent. Z. xi, p. 87.
927. THOMSON, C. G. Opuscula entomologia. Fasciculus xvimus. [*Hymenoptera*.]  
Relates to *Braconidæ*, and to some *Ichneumonidæ* allied to *Anomalon*.
928. THOMSON, J. P. British New Guinea. London: 8vo.  
Pp. 222-272 are occupied by a sketch of the present state of our knowledge of the entomology of the island.
929. TÖMÖSVÁRY, D. E. Golubačĭkha muha. Glasnik naravosl. Drust. vi, pp. 187-203, pl. ii. [*Diptera*.]
930. TOURNEUX, F. Sur les modifications structurales que présentent les muscles jaunes du *Dytique* pendant la contraction. J. de l'Anat. Phys. xxviii, pp. 573-581, pl. xxi.
931. TOWNSEND, C. H. T. New North American *Tachinidæ*. Ent. News, iii, pp. 80, 81, & 129-131. [*Diptera*.]
932. —. New Jamaica *Tachinidæ*. T. c. p. 146.

933. [TOWNSEND, C. H. T.] Notes on North American *Tachinidæ*, sens. str., with descriptions of new genera and species. Tr. Am. Ent. Soc. xix, pp. 88-132. [*Diptera*.]
934. —. The North American genera of Calyptrate *Muscidæ*. Paper II. *T. c.* pp. 133-144. [*Diptera*.]
935. —. The North American genera of Nemocerous *Diptera*. *T. c.* pp. 144-160.
936. —. The North American genera of Calyptrate *Muscidæ*. Paper III, *t. c.* pp. 273-278. Paper IV, *t. c.* pp. 279-284. Paper V, *t. c.* pp. 290-294. [*Diptera*.]
937. —. Notes on North American *Tachinidæ*, with descriptions of new species. Paper VII, *t. c.* pp. 284-289. [*Diptera*.]
938. —. Notes on North American *Tachinidæ*, with descriptions of new genera and species. Canad. Ent. xxiv. Paper V, pp. 64-70 & 77-82. Paper VI, pp. 165-172. [*Diptera*.]
939. —. A *Sarcophagid* parasite of *Cimbex americana*. *T. c.* p. 126. [*Diptera*.]
940. —. A preliminary grouping of the described species of *Sapro-myza* of North America, with one new species. *T. c.* pp. 301-304. [*Diptera*.]
941. —. Biologic notes on New Mexico Insects. *T. c.* pp. 193-200.
942. —. Description of a *Sarcophaga* bred from *Helix*. Psyche, vi, p. 220. [*Diptera*.]
943. —. An *Aporia* bred from *Limacodes* sp. *T. c.* p. 275. [*Diptera*.]
944. —. Descriptions of *Æstrid* larvæ taken from the Jack-rabbit and Cotton-tail. *T. c.* pp. 298-300. [*Diptera*.]
945. —. Oviposition of a *Homopterous* Insect in *Yucca*. *T. c.* p. 353. [*Rhynchota*.]
946. —. A *Tachinid* bred from larva of *Protoparce jamaicensis*. J. Inst. Jamaica, i, p. 70. [*Diptera*.]
947. —. A *Dexiid* parasite of a Longicorn Beetle. *T. c.* pp. 105 & 106. [*Diptera*.]
948. —. Insects frequenting *Yucca* blooms. Zoe, iii, pp. 113-115.
949. —. Notes on two Mexican species of *Ceroplastes*, with a record of parasites reared from one. *T. c.* pp. 255-257. [*Coccidæ*, *Hymenoptera*.]
950. TRAIL, J. W. H. The Gall-making *Hymenoptera* of Scotland (exclusive of those that live on oaks). Tr. & P. Perthsh. Soc. i, pp. 72-90.

Includes a list of plants that bear *Hymenopterous* galls.

951. TRYBOM, F. *Mermis*-larver hos *Chironomus*. Ent. Tidskr. xiii, pp. 81-92. [*Diptera*.]
952. TRYON, H. Zoology of British New Guinea. Part II. *Hemiptera*. Ann. Queensland Mus. ii, pp. 13-24.
953. —. *Coleoptera* collected by Mr. A. C. English in the St. Joseph river district of British New Guinea, under the auspices of his Honour the Administrator. Rep. Administrator Brit. New Guinea, ii, app. v, pp. 109-112.  
Recorded from a separate copy, paged 1-8.
954. —. *Rhopalocera* collected in British New Guinea during years 1889-90, under the auspices of his Honour the Administrator. *T. c.* pp. 112-115. Brisbane, 1890.  
Recorded from a separate copy, 8vo, pp. 1-7.
955. TUTT, J. W. British *Noctuae* and their varieties. Vol. II. London : 1892.
956. URECH, F. Ueber einen grünen Farbstoff in den Flügelchen (nicht in den Schuppen) der Chrysalide von *Pieris brassicae*. Zool. Anz. xv, pp. 281-283. [*Lepidoptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 778.
957. —. Beobachtungen über die zeitliche Succession des Auftretens der Farbenfelder auf den Puppenflügelchen von *Pieris brassicae*. *T. c.* pp. 284-290 & 293-299. [*Lepidoptera*.]
958. —. Ueber Eigenschaften der Schuppenpigmente einiger *Lepidopteren*-species. *T. c.* pp. 299-306.  
Summary in J. R. Micr. Soc. 1892, p. 778.
959. VACHAL, J. *Halicti*, novæ species. Bull. Soc. Ent. Fr. lxi, p. xxii. [*Hymenoptera*.]
960. —. *Hymenoptères* récoltés au Soudan. *T. c.* pp. cxxxv-cxxxvii.
961. VERHOEFF, C. Zur Kenntniss des biologischen Verhältnisses zwischen Wirth- und Parasiten-Bienenlarven. Zool. Anz. xv, pp. 41-43. [*Hymenoptera*.]  
Summary in J. R. Micr. Soc. 1892, p. 358.
962. —. Die physiologische Bedeutung des Stachelapparates besonders der *Hymenopteren*-Nymphen. *T. c.* pp. 355-360.
963. —. Neue und wenig bekannte Gesetze aus der *Hymenopteren*-Biologie. *T. c.* pp. 362-370.  
Relates to the numbers and positions of the sexes in their pupal cells, and to the proportions of males to females in certain species of *Fossoria*.  
Summary in J. R. Micr. Soc. 1893, p. 34.
964. —. Beiträge zur Biologie der *Hymenoptera*. Zool. Jahrb. Syst. vi, pp. 680-754, pls. 30 & 31.  
Includes discussion on phylogeny of Social *Hymenoptera*.

965. [VERHOEFF, C.] Weitere Untersuchungen über den Ausfärbungsprocess. *Ent. Nachr.* xviii, pp. 54-58.
966. —. Ueber einige neue und seltene *Fossorien*. *T. c.* pp. 65-72. [*Hymenoptera*.]
967. —. Einige Worte zu H. Friese's *Osmiën-Studien* und über einen Bau von *Osmia tridentata*. *T. c.* pp. 225-228. [*Hymenoptera*.]
968. —. Ueber Kämpfende und gesellige Bienenmännchen. *T. c.* pp. 244-247. [*Hymenoptera*.]
969. —. Eine neue *Osmia* aus Dalmatien. *T. c.* pp. 289-291. [*Hymenoptera*.]
970. —. Zur Entwicklung von *Hemerobius subnebulosus* und über Verfärbung der *Neuropteren*. *T. c.* pp. 279 & 298.
971. VERRALL, G. H. Two new English species of *Homalomyia*. *Ent. M. M.* xxviii, p. 149. [*Diptera*.]
972. VERNON, E. Postlarvale Neubildung von Zeldrüsen beim Seidenspinner. *Zool. Anz.* xv, p. 216. [*Lepidoptera*.]
973. —. Besitzen die Bauchfüsse der Seidenraupe Haftpapillen? *T. c.* pp. 279 & 281. [*Lepidoptera*.]  
Summary in *J. R. Micr. Soc.* 1892, p. 780.
974. —. Altre cellule glandulari di origine postlarvale. *Bull. Ent. Ital.* xxiv, pp. 3-17.  
Summary in *J. R. Micr. Soc.* 1892, p. 779.
975. VIALLANÈS, H. Recherches anatomiques et physiologiques sur l'oeil composé des arthropodes. *Ann. Sci. Nat.* (7) xiii, pp. 349-382, pls. x & xi.
976. VILLARD, L. Description d'un *Cerambycide* nouveau du Japon. *Bull. Soc. Ent. Fr.* lxi, p. li. [*Coleoptera*.]
977. \*VONHOF, O. Bienenmass, oder: die Descendenz lehre ist ein falscher Schluss! Auszug aus einer Studie. Bremen: 1891.  
*Cf.* *Ent. Nachr.* xviii, p. 237.
978. VUILLOT, P. Descriptions de *Lépidoptères*. *Bull. Soc. Ent. Fr.* lxi, pp. cxl & cxli.
979. —. Description d'un *Lépidoptère* nouveau. *T. c.* p. cxlviii.
980. —. Descriptions de six *Lépidoptères* nouveaux. *T. c.* pp. cxc-cxciv.  
— [See also MABILLE & VUILLOT (573).]
981. WAGNER, F. V. Zur biologie der wilden Bienen. *Biol. Centralbl.* xii, pp. 572-584. [*Hymenoptera*.]  
Relates chiefly to Friese's views.

982. WARBURG, O. Ueber Ameisenpflanzen. Biol. Centralbl. xii, pp. 129-142.

An interesting discussion on the symbiosis of plants and ants. Summary in J. R. Micr. Soc. 1892, p. 358.

983. WARREN, W. Descriptions of new genera and species of *Pyralidæ*, contained in the British Museum Collection. Ann. N. H. (6) ix, pp. 172-179, 294-302, 389-397, & 429-442, continued from Vol. viii, p. 70. [*Lepidoptera*.]
984. WASMANN, E. Einiges über springende Ameisen. Wien. ent. Z. xi, pp. 316 & 317. [*Hymenoptera*.]
985. —. Ein neuer *Paussus* vom Somaliland. MT. Schw. ent. Ges. viii, pp. 355-357. [*Coleoptera*.]
986. —. Zur Biologie einiger Ameisengaste. Deutsche e. Z. 1892, pp. 347-351. [*Coleoptera*.]
987. —. Die internationalen Beziehungen von *Lomechusa strumosa*. Biol. Centralbl. xii, pp. 584-599 & 633-669.  
Summary in J. R. Micr. Soc. 1892, p. 780, and 1893, p. 34.
988. WATERHOUSE, C. O. Two new *Buprestide* from Damma Island. Ann. N. H. (6) x, pp. 410-412. [*Coleoptera*.]
989. WEBER, L. Über die sog. *Triungulinus* form der Meloëlarven. Ber. Ver. Cassel, 1891-92, Abh. pp. 1-5, pl. [*Coleoptera*.]
990. WEBSTER, F. M. Report of Entomological work of the season of 1891. Bull. Dep. Agric. Ent. xxvi, pp. 63-74.
991. —. Food-plants of the *Lixi*. P. E. Soc. Wash. ii, p. 339. [*Coleoptera*.]
992. WEISE, J. Zwei neue *Cassida*-Arten. Wien. ent. Z. xi, p. 233. [*Coleoptera*.]
993. —. Kleine Beiträge zur *Coccinelliden*-Fauna Ost-Afrika's. Deutsche e. Z. 1892, pp. 15 & 16. [*Coleoptera*.]
994. —. Beitrag zur *Coleopteren*-Fauna von Turkestan. T. c. pp. 131-140.
995. —. *Coccinelliden* aus Ostsibirien. T. c. pp. 140 & 141. [*Coleoptera*.]
996. —. *Pachygnatha*, eine neue *Chrysomelen*-Gattung. T. c. p. 352. [*Coleoptera*.]
997. —. *Chrysomeliden* und *Coccinelliden* von der Insel Nias, nebst Bemerkungen über andere, meistens Südostasiatische Arten. T. c. pp. 385-400. [*Coleoptera*.]
998. —. Beschreibung einiger *Galeruciden*. T. c. pp. 403-405. [*Coleoptera*.]

999. [WEISE, J.] *Chrysomelen* aus dem hohen Caucasus. Deutsche e. Z. 1892, pp. 405 & 406. [*Coleoptera.*]
1000. —. *Malthodes brevicollis*, Payk. Typ einer Gattung. *T. c.* pp. 407–410. [*Coleoptera.*]
1001. —. Les *Coccinellides* du Chota-Nagpore. Ann. Ent. Belg. xxxvi, pp. 16–30. [*Coleoptera.*]
- [See also HEYDEN (402) and SICARD (846).]
1002. WERNER, F. Selbstverstümmelung bei Heuschrecken. Zool. Anz. xv, pp. 58–60. [*Orthoptera.*]
1003. WEYMER, G. Exotische *Lepidopteren*. VI. Aus dem afrikanischen Faunengebiet. S. E. Z. liii, pp. 79–125.
1004. WHEELER, W. M. Concerning the “blood-tissue” of the *Insecta*. Psyche, vi, pp. 216–220, 233–236, & 253–258, pl. vii.
1005. WICKHAM, H. F. On the early stages of three North American *Coleoptera*. Bull. Lab. Iowa, ii, pp. 195–201.
1006. —. Collecting in the far North. I. The Alaskan Coast. Ent. News, iii, pp. 139–144. II. The Stikine River. *T. c.* pp. 256 & 257.
1007. —. Report on an Entomological reconnoissance of Southern Alaska and adjacent portions of British Columbia. Bull. Lab. Iowa, ii, pp. 202–233.
1008. —. Description of four Insect monstrosities. Canad. Ent. xxiv, pp. 141 & 142. [*Coleoptera.*]
1009. —. Notes on some Myrmecophilous *Coleoptera*. Psyche, vi, pp. 321–323.
1010. WILLISTON, S. W. *Diptera* Brasiliana. Kansas Quart. i, pp. 44–46.
1011. —. A new species of *Criorhinia*, and notes on synonymy. Ent. News, iii, p. 145. [*Diptera.*]
1012. —. Note on the habits of *Ammophila*. *T. c.* pp. 85 & 86. [*Hymenoptera.*]
- [See also GODMAN & SALVIN (347).]
1013. WINN, A. F. The Horn Fly. Can. Rec. v, pp. 272–275. [*Diptera.*]
- First appearance in Canada.
1014. WOOD, J. H. Our Rush-feeding *Coleophoræ*. Ent. M. M. xxviii, pp. 117–122, & 169–176. [*Lepidoptera.*]
1015. —. Further notes on our Rush-feeding *Coleophoræ*. *T. c.* pp. 282–285. [*Lepidoptera.*]

1016. WRIGHT, W. G. Getting Butterfly Eggs. *Canad. Ent.* xxiv, pp. 70-74. [*Lepidoptera*.]
1017. —. Description of a new *Anthocharis*. *T. c.* p. 154. [*Lepidoptera*.]
1018. WROUGHTON, R. C. Our Ants. Part I. *J. Bomb. N. H. Soc.* vii, pp. 13-60, pls. A, B. Part II. *T. c.* pp. 175-202, pls. c, d. [*Hymenoptera*.]
1019. WULP, F. M. VAN DER. Einige uitlandische *Diptera*. *Tijdschr. Ent.* xxxiv, p. 193, pl. xii.
1020. XAMBEU, —. Description de quatre *Coléoptères* nouveaux et particuliers à notre département. *Soc. Agricole Pyrén.-orient.* xxxiii, pp. 241-243.
- The descriptions have appeared some years since elsewhere.
1021. —. Mœurs et métamorphoses d'insectes. *Ann. Soc. L. Lyon* (n.s.), xxxix, pp. 135-194. [*Coleoptera*.]
1022. —. Mœurs et métamorphoses d'insectes. *Soc. Agricole Pyrén.-orient.* xxxii, pp. 473-484. [*Coleoptera*.]
1023. —. Mœurs et métamorphoses d'insectes. 2<sup>me</sup> Mémoire. *Coléoptères*. Pp. 1-46. *Lyon*: 1892, 8vo.
- Published as supplement to *Échange*.
1024. —. Mœurs et métamorphoses d'insectes. 3<sup>e</sup> Mémoire. *Buprestides*. *Rev. d'Ent.* xi, pp. 202-252. [*Coleoptera*.]
1025. YERBURY, J. W. The Butterflies of Aden and neighbourhood. *J. Bomb. N. H. Soc.* vii, pp. 207-218. [*Lepidoptera*.]
1026. ZOUFAL, V. Uebersicht der mir bekannten Arten der *Coleopteren*-Gattung, *Tenebrio*, L. *Wien. ent. Z.* xi, pp. 283-286.

## II.—ANATOMY, PHYSIOLOGY, BIOLOGY.

### 1. GENERAL, COMPARATIVE, AND EXTERNAL.

General anatomy of *Phylloxera*, KRASSILTSCHIK (519).—Anatomy of *Coccus cacti*, and production of wax, MAYER (594).—General anatomy and histology of the Blow-fly, LOWNE (567).—The structure of male appendages, ESCHERICH (257).—Blood-tissue, various points discussed, WHEELER (1004).—Metameric glandular processes in larva of *Lagoa*, PACKARD (666).—Mouth-parts of *Copris*, and homology of mandibles, SMITH (864, 865).—Anatomy of mouth of *Diptera Pupipara*, MÜGGENBURG (628).—Comparative anatomy of trophi of *Thysanura* and *Collembola*, STUMMER-TRAUNFELS (907).—Glands in pulvilli of *Diptera*, JENKINSON (456).—Poison glands in *Ichneumonidæ*, BUYSSON (148).—Tegulæ and patagia of *Lepidoptera*, RILEY, P. E. *Soc. Wash.* ii, p. 310.

Mechanism of suction in *Hymenoptera* and other insects, JANET, p. xcvi, GAZAGNAIRE, p. xcvi, Bull. Soc. Ent. Fr. lxi.

Histology of metamorphosis of *Lepidoptera*, BUGNION (140).—Histology of elytra of *Coleoptera*, HOFFBAUER (405).

Physiological nature (Asphyxia) of metamorphosis in the silkworm, BATAILLON (35).—Mode of development of the chitinous envelope in larvæ of *Libellulidæ*, CHATIN (165).—The process of development of the epiderm in larvæ of *Libellulidæ*, CHATIN (166).—Post larval formation of cellular glands in *Bombyx mori*, VERNON (972).—Glandular epigastric cells of postlarval origin in silkworm, VERNON (974).—Survival of freezing, LYMAN (570).

## 2. NERVOUS SYSTEM, ORGANS OF SENSE, AND PSYCHOLOGY.

Nervous system of *Pentaplatarthus*, RAFFRAY (709).—Composition of the nerve-tissue in insects, GRIFFITHS, C.R. cxv, p. 563.—Structure of the nerve ganglia, BINET (89).—Terminations of nerves in muscles, MONTI (621).—Histology of nervous system of larva of *Stratiomys*, HENNEGUY & BINET (399).—Innervation of wings and elytra in *Coleoptera*, BINET (88).—Centre of reflex action of leaping in *Orthoptera*, HEINE (393).

Exner's views of vision discussed, AURIVILLIUS (27).—Nature of the retinal image of insects, VIALLANES (975).—Development of the imaginal eye of *Vanessa*, JOHANSEN (457).—Sense-organs in antennæ of ants, SERGI (840).—Tibial ears of *Locustidæ*, ADELUNG (3).—Cenchi in *Hymenoptera* and *Lepidoptera*, RILEY, P. E. Soc. Wash. ii, p. 309.—Odoriferous *Chalcididæ*, HOWARD, t. c. p. 215.

Construction of nests of ants, FOREL (288).—Habits of ants, WROUGHTON (1018); KATURICH (473, 474).—Wasp concealing tile, BLACKBURN, P. Ent. Soc. 1892, p. xx.—Intelligence of fossorial *Hymenoptera*, PERGANDE (671).—Instinct of fossorial *Hymenopteron*, *Ammophila*, WILLISTON (1012).—Mode of stinging by *Ammophila*, MARCHAL (580).—Instinct of *Apis mellifica*, SMITH (868).—"Assembling" males of *Lepidoptera*, SYKES, Ent. xxv, p. 84.

Social relations of *Termitidæ*, GRASSI (359).

Observations on the nature of the relations between *Lomechusa* and various kinds of ants, WASMANN (987).

Self-mutilation of *Orthoptera*, WERNER (1002).—Music of *Orthoptera*, SCUDDER (812).—Insect cannibalism, BERG (58).

## 3. MUSCULAR SYSTEM.

Histolysis and histogenesis of muscle, KOROTNEFF (511).—Condition of muscles of *Dytiscus* during contraction, TOURNEUX (930).

#### 4. ORGANS AND FUNCTION OF NUTRITION, CIRCULATION, AND RESPIRATION.

Composition of the blood of insects, GRIFFITHS (363).

Digestive system of a *Paussid Coleopteron*, RAFFRAY (709).—Histology of alimentary canal and its glands, HOLMGREN (411).—Anatomy and histology of alimentary canal of *Gryllotalpa*, EBERLI (244).—Bacteria normally present in digestive organs of *Hemiptera*, FORBES (286).

Movements of the Malpighian tubules, MARCHAL, p. celvi, Bull. Soc. Ent. Fr. lxi.

Respiration of larva of *Æschna*, MARTIN (585).—Origin of tracheæ from setiparous sacs, BERNARD (73).—Evolution of heat by beetles, DORAN (223).

#### 5. SEXUAL ORGANS AND EMBRYOLOGY.

Reproductive organs of *Pentaplatarthus*, RAFFRAY (709).—Morphology of ovipositor of *Hymenoptera*, MARLATT (581).—Histology of the annexes of the sexual organs in *Periplaneta*, BLATTER (108).—The radiate bodies in the receptaculum seminis of *Pronuba* and *Prodoxus*, RILEY (742).

GRABER (355) deals chiefly with the following points:—Chap. I, abdominal appendages; II, stigmata, tracheæ, Malpighian tubes, salivary glands, &c.; III, blood tissue; IV, the ganglionic chain; V, the genital glands; VI, enteroderm; VII, Keimhüllen.—Early stages in insects of various orders, and in parthenogenetic eggs; structure of micropyle in *Pyrrhocoris*, &c.; comparative embryology of the early stages, HENKING (396).—Embryology of viviparous *Aphididæ*, LEMOINE, p. clxiv, Bull. Soc. Ent. Fr. lxi.—Embryology and development of the blow-fly, LOWNE (567).—Embryology of *Phyllodromia germanica*, CHOLODKOVSKY (173); HEYMONS (404).—Embryology of *Smicra clavipes*, HENNEGUY (398).—Preliminary communication on various points in the embryology of parasitic *Hymenoptera*, KULAGIN (528).—Mode of preparing eggs for investigation, HENKING (397).

Structure of male organs and spermatogenesis in *Laphria* (*Diptera*), CHOLODKOVSKY (171); translated in Ann. N. H. (6) x, pp. 268–270.—Spermatogenesis in *Gryllotalpa*, RATH (713).—Micropyle (?) apparatus on eggs of *Hemiptera*, SHARP (842).

Wingless males of ants and consanguineous reproduction, FOREL, p. 458, Ann. Ent. Belg. xxxvi.

Parthenogenesis: history of knowledge of, TASCHENBERG (915); in *Chalcididæ*, HOWARD (432).

Hermaphrodites: of *Hymenoptera*, *Halictus* and *Macrophya*, KRIEGER (527); of *Azteca* (*Formicidæ*), FOREL (297); of *Chalicodoma muraria*, FREY-GESSNER, p. 372, MT. Schw. ent. Ges. viii; of *Ocneria dispar*, FERNALD, Canad. Ent. xxiv, p. 87; of *Agilia tau*, var. *nigerrima*, RÜHL, p. 36, Soc. Ent. vii; of *Aspilates strigillaris*, SWIERSTRA (911).—Anatomy

of lateral hermaphrodite of *Smerinthus populi*, TETENS (918).—*Papilio asterias*, ind. of mixed sexes, EDWARDS, p. 49, Canad. Ent. xxiv.

Sexual structures and hybridism, ESCHERICH (257).—On obtaining hybrids in *Lepidoptera*, STANDFUSS (884).—Hybrid of *Smerinthus ocellatus* and *populi*, ZIEGLER, Berl. Ent. Zeit. xxxvi, p. xxiii ; of *Zygæna trigonellæ* and *transalpina*, STRECKFUSS, *l. c.*

## 6. GENERAL BIOLOGY AND STRAY NOTES.

Insects on the surface of snow, *Ins. Life*, iv, pp. 335 & 336.—Aquatic lepidopterous larvæ, MÜLLER (629).—Butterflies entering water, EDWARDS, Canad. Ent. xxiv, p. 16.

Carnivorous caterpillars, PLATEAU (694).—Secretion of potassium hydroxide by *Dicranura*, LATTER (541).—*Parnassius*, formation of pouch, SCUDDER (813), and discussion, P. E. Soc. 1892, p. xxxiii.—Mode of expansion of the wings of *Lepidoptera*, PETERSEN (675).—Dorsal prolegs on *Coleopterous* larvæ, RILEY (750).—Mode of succession of cycles of generations in *Pemphigiens*, HORVATH (427).—Food influencing emergence of *Lepidoptera*, MERRIFIELD, Ent. M. M. xxviii, p. 20.—Bacterial structures in tissues and eggs, BLOCHMANN (109).—Jumping seeds, BUCHENAU (139) ; Jumping seeds, cocoons, &c., ASCHERSON, SB. Ges. Naturf. 1892, pp. 19 & 20.—Stridulation in *Lepidoptera*, HAMPSON (385).—Stridulation of *Acherontia*, ROTH, Ent. Tidskr. xiii, p. 250.—On the function of the striæ of *Histeridæ*, LEWIS (557).—Different times of appearance of the sexes of *Lepidoptera*, value of, discussed, PETERSEN (676).—Hours of flight of insects, SCHWARZ (808).

Cave insects, RAFFRAY & BOLIVAR (710).

Variety of *Papilio macareus*, NICÉVILLE, J. Bomb. N. H. Soc. vii, p. 345, pl. i, fig. 1.—Albino of *Colias*, EDWARDS, p. 49, Canad. Ent. xxiv.—Pallid female varr. of species of *Colias*, SKINNER & MENGEL, P. Ac. Philad. 1892, pp. 156 & 157.—*Colias edusa* and *helice*, proportional numbers, ADYE, P. E. Soc. 1892, p. xxv.—*Pieris napi*, Irish var., WEIR, Ent. M. M. xxviii, p. 22.—*Pieris rapæ*, melanic var., SWIERSTRA, pl. xvii, fig. 1, p. 337, Tijdschr. Ent. xxxiv.—Var. of *Euplea perditæ*, SNELLEN (871) ; varr. of *Argynnis*, *Arctia*, and *Aglaia*, BÜREN, MT. Ges. Bern. 1892, p. xiv ; var. of *Argynnis paphia*, FROHAWK, Ent. xxv, p. 242 ; ♀ var., LEECH, p. 240, pl. xxiii, fig. 2, Butt. China ; varieties of *Vanessa antiopa*, JÄGER, Ent. xxv, p. 43.—*Charaxes jasius* var., HONRATH, Berl. Ent. Zeit. xxxvi, p. xxiii ; *Melitæa cynthia* and others, variation, ZIEGLER, *l. c.* ; *Zygæna* spp., variation, THURAU, *t. c.* p. xxvi. Var. of *Epinephele tithonus*, SEEBOLD, p. 467, Berl. Ent. Zeit. xxxvi ; varieties of *Lepidoptera* (*Epinephele janira*, &c.) in Rhineland, FÜCHS, JB. nass. Ver. xlv, pp. 85–106 ; var. of *Epinephele hyperanthus*, FROHAWK, Ent. xxv, p. 215 ; var. of *Lycæna adonis*, HANBURY, P. E. Soc. 1892, p. xxxiv ; of *Lycæna bellargus*, AUSTEN, Ent. xxv, p. 16 ; of *Polyommatus agestis*, BARRETT, Ent. M. M. xxviii, p. 245.—Var. in neuration of *Pisola* (*Hesperiidæ*), NICÉVILLE, p. 351, J. Bomb. N. H. Soc. vii. Var. of *Sesia formicæformis*,

FROHAWK, Ent. xxv, p. 216 ; of *Trochilium apiforme* and *Zygæna cynaræ*, STANDFUSS, pp. 368 & 369, MT. Schw. ent. Ges. viii ; of *Zygæna filipendulæ*, BIRD, Ent. xxv, p. 194 ; of *Z. loniceræ*, BROMILOW, t. c. p. 194. Variation in ocelli of *Satyridæ* and formula for expressing it, COCKERELL, Canad. Ent. xxiv, p. 101.—*Vanessa urticæ*, variation in China, LEECH, Butt. China, pp. 258–260.—Variation of *Cynthia arsinœ*, RÖBER, p. 302, Tijdschr. Ent. xxxiv.—Variation in males of *Teracolus*, YERBURY, p. 216, J. Bomb. N. H. Soc. vii.—Variation of secondary male characters in *Forficula* and *Dynastidæ*, statistics, BATESON & BRINDLEY (42) ; of *Noctua festiva*, BARRETT, Ent. M. M. xxviii, p. 47. *Euchelia jacobæ*, yellow var. of, ANDERSON, Ent. xxv, p. 216 ; of *Euproctis fulviceps*, P. E. Soc. 1892, p. ii.—Breeding between *Arctia lubricipeda* and var., HARRISON, P. E. Soc. 1892, p. xxix.—*Arctia caja* var., LADDIMAN, Ent. xxv, p. 1, fig.; ANDERSON, t. c. p. 290.—Attempt to obtain varr. of *Arctia caja* by interbreeding, ARKLE, Ent. xxv, p. 57.—*Iiparis monacha*, variation from parents from different localities, CLARK, P. E. Soc. 1892, p. xxx.—*Amphidasys betularius* var. *doubledayarius*, breeding from, STEINERT (897).

Variation in colour of eggs of *Biston hirtaria*, ADKIN, Ent. xxv, p. 129, PEARSON, t. c. p. 163.—Localised variation of *Callimorpha*, MASON, Ent. News, iii, p. 52.—Variation and heredity in *Pronuba* and *Prodoxus*, RILEY (741).—Variation in *Zonabris* according to law, ESCHERICH (258).—Seasonal variation in *Satyridæ*, MOORE, Lep. Ind. i, pp. 147, &c., &c.—Extension of melanism on the Continent of Europe, BERGER (59).—*Amphidasys betularia*, increasing extension of var. *doubledayaria*, HOFFMANN, Ent. M. M. xxviii, p. 48.—Phæism of Java Butterflies, SANSOM, Ent. xxv, p. 43.—Local variation, &c., in the Bucovina, HORMUZAKI (414).—Variation of British *Noctuæ*, TUTT (955); in several species of British *Lepidoptera* (*Noctuidæ*, *Geometridæ*), SOUTH (879).—Trimorphism of *Hypocala*, BUTLER, Ann. N. H. (6) x, p. 17.—Variation in colour of Sphingid larva, BEUTENMÜLLER, Bull. Am. Mus. iv, p. 65.—Variation of *Spilosoma obliqua* in Australia, ANDERSON, Vict. Nat. ix, p. 83.—Variation of neuration in *Selidosemidæ*, MEYRICK, pp. 124–140, Tr. E. Soc. 1892.—*Polia chi*, melanism, PORRITT, P. E. Soc. 1892, p. ii.—Variation of *Catocala nupta*, FROHAWK, Ent. xxv, p. 243.

Melanic var. of *Eupithecia castigata*, TUGWELL, Ent. xxv, p. 41.—*Boarmia repandata*, var., HALL, Ent. M. M. xxviii, p. 267.—*Thamnonoma wavaria*, remarkable aberration, VRIES, p. 24, & SNELLEN, p. 25, Tijdschr. Ent. xxxv.—Many varr. of *Lepidoptera* noticed in Ent. Record, iii, passim.

Variation in markings of *Coleoptera*, HORN (420).—Variation of *Cicindela flexuosa*, BEUTHIN, Ent. Nachr. xviii, pp. 333–335 ; in other *Cicindelæ*, BEUTHIN, t. c. pp. 359–362, 376, & 377.—Variation in structure of *Carabus hispanus*, BEUTHIN, p. 211, Ent. Nachr. xviii.—Variation in structure of *Dytiscus marginalis*, ♀, PEYTOUREAU, Bull. Soc. Ent. Fr. lxi, p. xlvi.—Variation in metasternal processes of *Dytiscus marginalis*, GRIFFINI (360).—Variation of *Gnathocera hyacinthina*, KOLBE, S. E. Z. liii, pp. 129–131.—*Typophorus canellus* (*Eumolpini*), great colour

variation, HORN, p. 208, Tr. Am. Ent. Soc. xix.—Varieties of *Coccinellidæ*, WEISE, pp. 17–24, Ann. Ent. Belg. xxxvi.—System of nomenclature for varr. of *Coccinellidæ*, Abeille, xxviii, p. 2.

Variation in *Opomyza punctella*, SINTENIS, p. 177, Wien. ent. Z. xi.

Variation in melanic *Cicadidæ*, DISTANT, p. 111, Mon. Orient. Cicad.

Rudimentary wings of *Coleoptera*, CASEY, Ann. N. York Ac. vi.—Absence or inferior condition of eyes in cave insects, JOSEPH (458).

Green and brown pupæ of *Papilio podalirius*, BONHOTE, Ent. xxv, p. 44; of *Papilio*, COCKERELL, Ent. xxv, p. 93, and FROHAWK & BEDFORD, t. c. p. 120.—Coloration of pupæ of *Limnas*, YERBURY, J. Bomb. Soc. vii, p. 209.

Origin of striking colour and eye spots in *Lepidoptera*, PORTSCHINSKY (700).—Protective and warning coloration, &c., BEDDARD (46).—Development of colour in the final metamorphosis, VERHOEFF (965, 970).—Composition of pigment of *Lepidoptera*, GRIFFITHS (362).—Chemistry of pigment in yellow Butterflies, HOPKINS, Nature, xlv, p. 197.—Action of chemical agents on scales of some *Lepidoptera*, COSTE (192).—Order (evolutionary) of colours in *Lepidoptera*, COSTE, Ent. xxv, p. 28.—The peculiarities of the scale-pigments in numerous *Lepidoptera*, URECH (958).—On the process of coloration of the pupal wings of *Pieris brassicæ* and *Vanessa*, URECH (957).—A colouring matter in wings of pupa of *Pieris brassicæ*, URECH (956).—Colour and its relation to histolysis and histogenesis in *Orthoptera*, KÜNKEL (529).—Changes of colour due to histolysis and histogenesis at the moults of *Schistocerca*, KÜNKEL (530); cf. also BRONGNIART, t. c. p. lix.

*Lepidoptera* choosing protective position, JEFFREYS, Ent. xxv, p. 68, SYKES, t. c. p. 69, & BIDDLE, t. c. p. 94.—Protection of *Saturnia pavonia* by its spines, HEIM, Bull. Soc. Ent. Fr. lxi, p. xlviii.—Palatability of conspicuous larvæ, GOULD (354); PERKINS, Ibis, 1893, pp. 103 & 104.—Protection of *Acronycta alni*, FITZ-GIBBON (283).—*Kallima*, habits of, FOWLER, P. E. Soc. 1892, p. xviii.

Resemblances: between various insects, seeds, &c., NICOLAS, Échange, 1892, p. 143; between varr. of different *Coccinellidæ*, BEDEL, p. 36, note, Abeille, xxviii; between ant and bug, BERGROTH (71), between two bugs, *id.* (72); between ant and bug, GERSTAECKER, JB. Hamb. ix, p. 51; of portions of *Phyllium* to vegetable structures, SHARP, P. E. Soc. 1892, p. xiv; between *Gyrophæna* and ant, WICKHAM (1009); between Psyllids and Coccids, MASKELL, Tr. N. Z. Inst. xxiv, p. 3; between Cicadidæ and Sphingidæ, DISTANT, p. 119, Mon. Orient. Cicad.; of *Epicopeia* to *Papilio*, HONRATH, p. xxi, Berl. Ent. Zeit. 1892; between beetle, *Exema gibber*, and excrement of caterpillar, HARRINGTON, Ottawa Natural. 1892, p. 84; of beetle's egg to bark on which it is placed, POPENOE, Tr. Kansas Ac. xii, p. 15; resemblance to parts of vegetables, PLATEAU (695); between Pompilid and Cicindelid, SAUSSURE, p. 338, Grandidier Madagascar, xx, pt. 1; of Lepidopterous larvæ to snakes, HART, J. Bomb. N. H. Soc. vii, p. 105; resemblance between *Aradidæ* and *Pentatomidæ*, BERGROTH (70); *Zygana* and *Tettigonia*,

HEYLAERTS, p. 47, Ann. Ent. Belg. xxxvi; *Diptera* and *Tenthredinidæ*, GIARD (336).—Resemblance of parasitised mealy-bug to puparium of *Diptera*, HOWARD, P. E. Soc. Wash. ii, p. 237; between ants and spiders, BANKS, P. E. Soc. Wash. ii, p. 174; grasshoppers agreeing in colour with burnt patches, THOMAS, Nature, xlv, p. 612.—The Yucca moth and bogus Yucca moth, RILEY, P. Biol. Soc. Washington, vii, p. 96.

Chrysalis resembling old man's head, HOLLAND (410).

Mimicry: SEITZ (819, 820), WEIR, P. E. Soc., 1892, p. xxxiv, PLATEAU (695), HAASE (382), SWINHÖE (910).—Aggressive mimicry, HELLER (395).—Cases of mimicry enumerated, HELLER, Ent. Nachr. xviii, p. 185.—The mimicry of *Volucella*, BATESON, Nature, xlv, p. 585, POULTON, xlvii, p. 28, BATESON, t. c. p. 77, HART, p. 78, POULTON, t. c. p. 126, ROMANES, t. c. p. 200.—*Volucella* and *Vespa*, NICOLAS (639).

Relation of colour of Lepidopterous larvæ, cocoons, and pupæ to surroundings, POULTON (703) and GOULD (354).—Colour of pupæ and surroundings, MERRIFIELD, P. E. Soc. 1892, p. xxx.—Temperature and colour in *Lepidoptera*, MERRIFIELD, P. E. Soc. 1892, p. xxiii, and ADKIN, t. c. p. xxxi.

Influence of temperature and light, applied in the pupal stage, on the colours of *Lepidoptera*, MERRIFIELD (600).—Source of colour of cocoons of *Saturnia*, *Eriogaster*, and of pupæ of *Vanessa urticae*, BATESON (40, 41).—Cocoons of *Halias chlorana*, variation in colour of, Ent. Rec. iii, p. 9.

Deformities of some *Coleoptera*, PLANET, Le Nat. 1892, pp. 50, 51.—Deformities in the abdominal segments of *Tachinidæ*, TOWNSEND, Ent. News, iii, pp. 166, 167.—Supernumerary and abnormal tarsi, &c., of some *Coleoptera*, WICKHAM (1008), cf. also t. c. p. 182.—*Zygena filipendula* with fifth wing in place of a leg, RICHARDSON (738) with fig.—*Telephorus rusticus*, additional leg, ADAMS, P. E. Soc. 1892, pp. iv & xii.—Antenna in *Carabus monilis*, PIC, p. 258, Rev. d'Ent. xi.—One-eyed bees, COOK, P. Am. Ass. xl, p. 327.—Shortened wings in *Agrotis*; abnormal antenna in *Tragidion*, RILEY, P. E. Soc. Wash. ii, p. 181.

Competition of ♂ bees, VERHOEFF (968).—Darwinism, VONHOF (977).—The phylogeny and embryonic morphology of insects, CHOLODKOVSKY (170).—Phylogeny of social *Hymenoptera*, VERHOEFF (964); phylogeny of *Papilionidæ*, SPULER (882).—Wing-neuration and phylogeny of *Lepidoptera*, SPULER (881).—Homology of elytra of *Coleoptera*, HOFFBAUER (405).

Stylopized bees, PERKINS (674), and THEOBALD (920).—Ants-nest beetles, WASMANN (986), WICKHAM (1005).—Galls: BRODIE (129), LIEBEL (562), MARTEL (584), MIK (610).—Classification of galls, KERNER (480).—Galls of *Cecidomyiidae*, KIEFFER (493), RÜBSAAMEN (786), THOMAS (925).—Alpine *Cecidomyioides* galls, THOMAS (924).—Galls of Lorraine, KIEFFER (495).—Galls on *Muhlenbergia mexicana*, insects reared from, WEBSTER, Canad. Ent. p. 243; of *Eurosta solidaginis*, BRODIE (130).

Plants and ants, KELLER (475), WARBURG (982).

Insects and flowers: Insects attacking man. [See Economic.]

## III.—FAUNISTIC AND PALÆONTOLOGY.

The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here made use of. But synonymical notes and changes of systematic position are not included in these references.

New species, whose locality is not known :—*Coleoptera* : *Rhabdopholis melolonthoides*, cf. *Scarabæidæ*. *Hymenoptera* : *Evania cribrata*, cf. *Hym. par. Evaniidæ*. *Lepidoptera* : *Rhodoneura notula*, cf. *Pyralidæ*, &c. *Diptera* : *Bellardia furcata*, *Atylotus erraticus*, *rubrinotatus*, BIGOT. *Orthoptera* : *Mecopoda divergens*, cf. *Locustidæ*; *Phyllozelus genicularis*, n. g. & sp., *Brochopeplus reticulatus*, n. g. & sp., cf. *Locustidæ*.

## 1. ARCTIC AND ANTARCTIC.

West Greenland (*Insecta*), FOX (298).

Greenland (*Lepidoptera*), SKINNER & MENGEL (850); (*Diptera*), BRAUER & BERGENSTAMM (119).

## 2. INSULAR (INCLUDING NEW ZEALAND).

Iceland (*Coleoptera*), SÉNAC, Bull. Soc. Ent. Fr. lxi, p. xxviii.

Madeira (*Diptera*), BIGOT (85).

Madeira and Azores (*Orthoptera*), BOLIVAR, Bull. Soc. Z. Fr. 1892, pp. 46-49.

Canary Is. (*Coleoptera*), SÉNAC (836); (*Hymenoptera*), FOREL (291), KOHL (501); (*Lepidoptera*), ALLUAUD, Bull. Soc. Ent. Fr. lxi, p. ccxxxix, REBEL (715); (*Diptera*), BRAUER & BERGENSTAMM (119); (*Orthoptera*), KRAUSS (521).

St. Helena (*Odonata*), CALVERT (150).

Fiji Is. (*Orthoptera*), KARSCH (471, p. 343).

Fiji and Pelew Is. (*Orthoptera*), REDTENBACHER (717).

Loyalty Group (*Lepidoptera*), ROTHSCHILD (782).

Admiralty and Solomon Is. (*Coleoptera*), FAUST (278).

New Hebrides (*Coleoptera*), DESBROCHERS (203).

New Ireland (*Lepidoptera*), HONRATH (412).

New Caledonia (*Rhynchota*), DISTANT (214), and MONTANDON (617).

Norfolk I., New Caledonia (*Rhynchota*), DISTANT (213).

Pitcairn I. (*Lepidoptera*), WARREN (983).

S. Pacific Is. (*Lepidoptera*), DRUCE (227).

New Zealand and New Caledonia (*Diptera*), BIGOT (85).

New Zealand (*Insecta*), HUDSON (440); Insects introduced, *Ins. Life*, iv, p. 339; (*Coleoptera*), HORN (421); *Platysoma jejunum* withdrawn,

LEWIS (555) ; (*Hymenoptera*), FOREL (294), MARSHALL (583) ; (*Lepidoptera*), MEYRICK (605), WARREN (983) ; (*Coccidæ*), MASKELL (590).

Hawaiian Is. (*Neuroptera*), MACLACHLAN (574).

Galapagos (*Diptera*), BRAUER & BERGENSTAMM (119).

### 3. PALÆARCTIC REGION.

#### (a.) *The Region.*

*Coleoptera.* BALBI (31, 32), DESBROCHERS (201, 202, 204, 205, 207, 208, 209), ESCHERICH (259), GANGLBAUER (319), GUILLEBEAU (373), JAKOWLEFF (451), REITTER (724), SCHWARZ (809, 810), STIERLIN (899, 900, THÉRY (921).

*Hymenoptera.* BERTHOUMIEU (74), HANDLIRSCH (386), JAKOWLEW (453), KOHL (501), SEMENOW (828, 829).

*Lepidoptera.* ROMANOFF (779), RÜHL (789), STAUDINGER (886, 887), *id.* [S. Siberia] (891), WARREN (983).

*Diptera.* BIGOT (83, 85), BRAUER & BERGENSTAMM (119), MIK (608), PORTSCHINSKY (699).

*Rhynchota.* PUTON (707, 708).

#### (b.) *Collective Europe.*

*Hymenoptera.* ANDRÉ (11), KONOW (510), THOMSON (927).

*Diptera.* KOWARZ (512), RÜBSAAMEN (787).

*Rhynchota.* HORVATH (429).

#### (c.) *British Islands.*

##### ADDITIONS.

*Coleoptera.* BLATCH, novelty, Ent. M. M. xxviii, p. 160.—CHAMPION, novelty, t. c. p. 68.—BLATCH & HORNER, n. sp. (103).

*Hymenoptera.* BIGNELL, n. sp. (82).

*Lepidoptera.* BARRETT, novelty, Ent. M. M. xxviii, p. 244.—WOOD, novelties, n. spp. (1014) ; *id.* n. sp. (1015).

*Diptera.* MEADE, n. sp. (595), n. sp. (596), novelty, n. sp. (597).—VERRALL, n. spp. (971).

*Aphaniptera.* SAUNDERS, novelty, Ent. M. M. xxviii, p. 66.

*Rhynchota.* SAUNDERS, novelties, Ent. M. M. xxviii, p. 8 ; novelty, *id.* t. c. p. 258.

*Coccidæ.* NEWSTEAD, novelties, n. spp. (637).

*Neuroptera.* MORTON, novelty, Ent. M. M. xxviii, p. 108.

##### LOCAL LISTS.

*Insecta.* East Sussex, PORRITT, Ent. M. M. xxviii, p. 227.—Bristol (Phenological), P. Bristol Soc. vii, pp. 10 & 11.—Bayswater, PASCOE, Ent. M. M. xxviii, p. 230.—Withernsea, BAKER & PORTER, Naturalist, 1892, pp. 296 & 297.

*Coleoptera.* Cornwall, ISABELL, Rep. Penzance Soc. 1891-92, p. 376.—Plymouth, KEYS, Ent. M. M. xxviii, p. 23.—New Forest, CHITTY, Ent. M. M. xxviii, p. 24, and *t. c.* p. 216.—Hastings, BENNETT, Ent. M. M. xxviii, p. 193.—Gomshall, BUTLER, Ent. M. M. xxviii, p. 268.—Wellington, ELTON, Ent. M. M. xxviii, p. 288.—Woking, CHAMPION, Ent. M. M. xxviii, p. 193, and *t. c.* p. 243.—Gloucestershire, SHIPP, *t. c.* p. 288.—Cardiff, STORRIE, Rep. Cardiff Soc. xxiv, p. 64.—Cambridge, FOWLER, Ent. M. M. xxviii, p. 215.—Withernsea, FOWLER, *t. c.* p. 215.—Doncaster BAYFORD, *t. c.* p. 267.—Birkenhead, ELLIS, Ent. xxv, p. 144.—The *Hydradephaga* of Lancashire and Cheshire, W. E. SHARP, Naturalist, pp. 189, &c., &c.—Scotland, CHAMPION, Ent. M. M. xxviii, p. 243.—Some additions to Scottish *Coleoptera*, with notes on species new or rare in the "Solway" district, LENNON & DOUGLAS, Ann. Scot. N. H. i, pp. 107-115.—Kirkcudbright, DOUGLAS, *t. c.* p. 271.—Loch Awe, CHITTY, Ent. M. M. xxviii, p. 216.—Elginshire and Mid Lothian, EVANS, Ann. Scot. N. H. i, p. 78.—Ireland, CUTHBERT, Brit. Nat. ii, p. 29; JOHNSON, Ent. M. M. xxviii, p. 213.—N. Ireland, JOHNSON, *t. c.* p. 134.—Donegal, JOHNSON, *t. c.* p. 310.—Louth, CUTHBERT, Irish Nat. i, p. 158; Dublin, BROWNE, *t. c.* p. 189.—Armagh, JOHNSON, *t. c.* pp. 14, &c.

*Strepsiptera.* Surbiton, SAUNDERS, Ent. M. M. xxviii, p. 249; Bruton, EATON, *t. c.* p. 250.

*Hymenoptera.* Wotton-under-Edge, PERKINS, Ent. M. M. xxviii, p. 135.—Shirley, ROTHNEY, *t. c.* p. 51.—Rugby, MORICE, Rep. Rugby Soc. 1891, pp. 56-60.—Norfolk, BRIDGMAN, Tr. Norw. Soc. iv, p. 690; Fauna and flora of Norfolk: part xii, Phytophagous *Hymenoptera* (Sawflies), Tr. Norw. Soc. iv, pp. 523-536.—Yorkshire, NELSON, SUMMERFIELD, ROEBUCK, WILSON, Naturalist, 1892, p. 325.—A preliminary list of the *Aculeata* of Lancashire and Cheshire; Brit. Nat. ii, pp. 21-23, &c.—Scotland, TRAIL (950).—Dunbar, POW, Ann. Scot. N. H. ii, p. 79.—Perthshire, M'GREGOR, Tr. Perthsh. Soc. i, pp. 65-72 & 152.

*Lepidoptera.* The *Lepidoptera* of Britain, BARRETT (34).—Label list of British *Lepidoptera*: (first part) issued as a supp. to J. Inst. Cornwall, xi.—Notes concerning local British Butterflies, Goss, Ent. M. M. xxviii, p. 44.—Immigration of *Pieris brassicæ*, KERRY (490).—Occurrence of *Deiopeia pulchella* in England, SOUTH, Ent. xxv, pp. 153-155, 166-168, & 191.—*Ocneria dispar* in England, SOUTH, Ent. xxv, p. 259.—*Colias edusa* in England in 1892, Ent. M. M., Ent., Ent. Rec., &c., numerous notices.—Introduction of *Callimorpha hera*, LUFF, Ent. M. M. xxviii, p. 21.—S. Devon, BROOKS, Ent. M. M. xxviii, p. 280; PRIDEAUX, Ent. xxv, p. 221; BIGNELL, *t. c.* p. 256.—Sidmouth, WELLS, Ent. xxv, pp. 67 & 68.—Ilfracombe, BOYD, P. E. Soc. 1892, p. vii.—Exeter, STILL, Ent. M. M. xxviii, p. 132; BARRETT, P. E. Soc. 1892, p. xiv.—Plymouth, BRIGGS, Ent. xxv, pp. 45-47.—Dartmoor, STILL, *t. c.* pp. 228-230.—Dorset, CAMBRIDGE, Ent. xxv, p. 196; DALE (196), RICHARDSON (740).—Bloxworth, CAMBRIDGE, Ent. xxv, pp. 82-84.—Purbeck, BANKES, Ent. M. M. xxviii, pp. 48 & 49, and *t. c.* pp. 308 & 309.—Lepidopterous fauna of Portland, RICHARDSON (739).—Bournemouth, ADYE, P. E. Soc. 1892,

p. xxv.—New Forest and Swanage, ALDERSON, Ent. xxv, pp. 313–315.—Lyndhurst, JACKSON, *t. c.* p. 219.—Freshwater, STEVENS, P. E. Soc. 1892, p. xi.—Winchester, NEVINSON, Ent. xxv, p. 169.—Hastings, BLOOMFIELD, Ent. M. M. xxviii, p. 267.—Brighton, FIELD, Ent. xxv, p. 318.—East Sussex, TUGWELL, *t. c.* pp. 156–159.—Folkestone, PARTRIDGE, Ent. M. M. xxviii, p. 265.—Shorncliffe, *id.* *t. c.* p. 191.—Ashford, VIGGERS, Ent. xxv, p. 289.—Tunbridge Wells, BEECHING, P. E. Soc. 1892, p. xxv.—Dorking, FLOOD, Ent. xxv, p. 169.—Surbiton, GOSS, Ent. M. M. xxviii, p. 246.—Alton, REID, Ent. xxv, p. 220.—Middlesex, COCKERELL, *t. c.* pp. 115–118, 130–134, 182–185, & 203–207.—Crouch End, JAMES, *t. c.* pp. 65–67.—Tineina, &c., at Sandridge, GRIFFITH, Tr. Hertf. Soc. vi, pp. 97–102.—Wellington, GHICA, Rep. Wellington Soc. xxiii, p. 49.—Marlborough, MEYRICK, Rep. Marlb. Coll. Soc. xl, pp. 124, &c.—Essex, FITCH, Ess. Nat. vii, pp. 115 & 140; COLE & ARGENT, *t. c.* pp. 140 & 141.—Notes on the *Lepidoptera* of Northamptonshire, EDWARDS, J. Northampt. Soc. 1891, pp. 235, &c., and 1892, pp. 19–23.—Nottinghamshire, BARRETT, Ent. M. M. xxviii, p. 267.—Suffolk, RENDLESHAM, Ent. xxv, p. 244.—Aldeburgh, CRUTTWELL, Ent. M. M. xxviii, p. 253.—Norfolk, BARRETT, P. E. Soc. 1892, p. xxvii; and Tr. Norw. Soc. iv, pp. 691–701.—Ranworth, WHEELER, Ent. M. M. xxviii, p. 203.—Staffordshire, WOODFORDE, Ent. xxv, p. 241.—North Staffordshire, DALTRY, *t. c.* p. 95.—N. Staffordshire, DALTRY, Rep. N. Staffordsh. Club, 1888, p. 11; 1889, p. 12; 1890, p. 15; 1891, p. 14; 1892, p. 74.—Delamere Forest, ARKLE, Ent. xxv, p. 145.—Lincoln, CARR, Ent. M. M. xxviii, pp. 130 & 131.—Halifax, HALLIDAY, Naturalist, 1892, p. 339.—York, HEWETT, Ent. xxv, pp. 170–172.—Isle of Man, CLARKE, Brit. Nat. ii, p. 24, and Lioar Man, pp. 287, &c., &c.—Windermere, MOSS, Ent. xxv, p. 246.—Westmoreland, NEVINSON, *t. c.* p. 144.—Carlisle, ROUTLEDGE, *t. c.* p. 169.—A list of the *Macro-Lepidoptera* of Balerno, Mid Lothian, Ann. Scot. N. H. i, pp. 39, &c.—Jura, EVANS, *t. c.* p. 141.—Perth, WHITE, *t. c.* p. 271.—Rannoch, ADKIN, Ent. xxv, pp. 105–110.—Aberdeenshire, REID, Brit. Nat. i, p. 66, &c.; ii, p. 80, &c.—Lochinvar, BEVERIDGE, Ann. Scot. N. H. i, pp. 172–177.—Armagh, JOHNSON, Ent. M. M. xxviii, p. 217; Mourne district, WATTS, *l. c.*

*Diptera.* South Devon, MATTHEWS, Ent. M. M. xxviii, p. 268.—Horrabridge, DALE, *t. c.* p. 310.—*Diptera* of Dorsetshire, DALE, Brit. Nat. i, p. 3, &c.; ii, p. 63, &c.—Glanvilles Wootton, DALE, Ent. xxv, p. 72.—Dorset and Hants, DALE, Ent. M. M. xxviii, p. 268.—Sutton Park, BRADLEY, Ent. M. M. xxviii, p. 110.—Sherwood and Wyre Forests, *id.* *t. c.* p. 290.—North Uist, DALE, *t. c.* p. 50.

*Rhynchota.* The *Hemiptera-Heteroptera* of Britain, SAUNDERS (792).—Additions to the list of *Hemiptera-Heteroptera* collected in the Island of Guernsey, LUFF, Ent. M. M. xxviii, p. 7.—Woking, SAUNDERS, *t. c.* p. 218.—Remarks on some *Hemiptera-Heteroptera* taken in the neighbourhood of Bath, BLATHWAYT, P. Bath Club, vi, pp. 315–326. List of terrestrial *Hemiptera-Heteroptera* taken in the neighbourhood of Bath, *id.* *t. c.* pp. 432–435.—Chobham and Surbiton, SAUNDERS, Ent. M. M.

xxviii, p. 290.—Norfolk, EDWARDS, Tr. Norw. Soc. iv, pp. 702–710.—Chesil Bank, *Coccidae*, DALE, Ent. M. M. xxviii, p. 219.

*Neuroptera*. Localities for Dragon-flies, Sci. Goss. 1892, pp. 17, &c., &c.—*Neuroptera* observed in the Channel Islands in September, 1891, McLACHLAN, Ent. M. M. xxviii, pp. 4–6.—A list of the *Neuroptera* inhabiting the Island of Guernsey, LUFF, Rep. Guernsey Soc. 1891, pp. 155–160.—Guernsey, LUFF, Ent. M. M. xxviii, pp. 72 & 73.—Sark, McLACHLAN, Ent. M. M. xxviii, p. 74.—Leatherhead, BRIGGS, *t. c.* pp. 194 & 268.—Chippenham, KING, *t. c.* p. 246.—Penistone, PORRITT, *t. c.* p. 311.—Ireland, MORTON, *t. c.* pp. 110 & 301.

*Orthoptera*. Norfolk, SHAW, P. E. Soc. 1892, p. xxvii.

(d.) *North Europe and Siberia* [see also (a.) and (b.)].

*Insecta*. KLÆR, Ent. Tidskr. xiii, p. 92.

*Coleoptera*. Sweden, LAMPA, Ent. Tidskr. xiii, p. 208.—Siberia, BERGROTH (60); REITTER, Wien. ent. Z. xi, pp. 187, 188.—E. Siberia, BRENSKE (123), WEISE (995).

*Hymenoptera*. Norway, Fortegnelse over nogle for Norges Fauna nye arter af *Phytophage Hymenoptera*, KLÆR, Ent. Tidskr. xiii, pp. 67–70.—Sweden, NERÉN (631).

*Lepidoptera*. Scandinavia, AURIVILLIUS (23); SAHLBERG, Ent. Tidskr. xiii, p. 291.—Roldal, WALKER, Ent. xxv, pp. 36–39.—Christiania, HUITFELDT-KAAS, Ent. Tidskr. xiii, pp. 78–80.—Sweden, AMMITZBÖLL, Ent. Tidskr. xiii, p. 73.—Siberia, CHRISTOPH (175), RAGONOT (712), ROMANOFF (779).—Amurland, GRAESER, (356).—S. Siberia, *Lep.* see (a.).

*Rhynchota*. Siberia, JAKOWLEFF (452), BERGROTH (65).

*Diptera*. Norway, BIDENKAP (81); Sweden, LAMPA (537).—*Thysanura*. Siberia, REUTER (734).

(e.) *Central and Eastern Europe* [see also (a.) and (b.)].

*Insecta*. Belgium, SELYS (826).—Germany, BRISCHKE (126, 127).—Rheinland, VERHOEFF, Ent. Nachr. xviii, p. 3.—Galls of Lorraine, KIEFFER (495).—St. Gall, WEGELIN, Ber. St. Gall. Ges. 1890–91, pp. 307–335.—Trencsen, BRANCSIK, Jahresheft. Ver. Trencsin. xiii, pp. 43–46.—BECKER, Sarepta (44).

*Coleoptera*. Denmark, LOVENDAL, Ent. Medd. iii, pp. 235–240.—Netherlands, EVERTS (260), and Tijdschr. Ent. xxxv, p. xii.—Belgium, BORRE, p. 228, Ann. Ent. Belg. xxxvi; L. COUCKE, *t. c.* p. 79; E. COUCKE (193).—Matériaux pour la faune entomologique de la province du Luxembourg, belge. *Coléoptères*, Troisième centurie. DE BORRE, Publ. inst. Luxemb, xxi, pp. 81–117.—SCHILSKY, vii, Beitrag zur Kenntniss der deutschen Käferfauna, Deutsche e. Z. 1892, pp. 193–208.—Brunswick, HELLER, Ent. Nachr. xviii, pp. 33–36.—Die Käfer von Nassau und Frankfurt. Sechster Nachtrag. JB. nass. Ver. xlv, pp. 65–82.—Göttingen, RADE, p. 367, Ent. Nachr. xviii.—Catalogue des *Coléoptères* récoltés à Aigle et environs, Bull. Soc. Murith. xix, pp. 21–60.—Switzerland,

GUILLEBEAU, Échange, i, No. 7, p. 3.—Simplon, BOURGEOIS, p. ccxiv, Bull. Soc. Ent. Fr. lxi.—Brunn, FLEISCHER, pp. 206, 209, & 211, Wien. ent. Z. xi.—Silesia, LETZNER (551).—Austria, EPPELSHEIM (255).—Hungary, FRIVALDSZKY (310).—Carinthia, REITTER, p. 186, Wien. ent. Z. xi, WEISE (1000).—Russia, SEMENOW (834).—Sarepta, PIC (677).

*Hymenoptera.* Belgium, LAMEERE (535).—Germany, KRIECHBAUMER (523, 524), VERHOEFF (966).—Switzerland, FREY-GESSNER (307, 308).—Russia, MORAWITZ (624).

*Lepidoptera.* Belgium, HIPPERT, pp. 451 & 480, Ann. Ent. Belg. xxxvi; SELYS, t. c. p. 391.—Netherlands, CAPPEL, Tijdschr. Ent. xxxv, p. xv.—Loreley, FÜCHS (313).—Die *Macrolepidopteren* der Dresdner Gegend, STEINERT, pp. 395–423, Deutsche e. Z. Lep. v.—Switzerland, RÜHL, MT. Schw. ent. Ges. viii, p. 367.—Stilfser-Joch, RÜHL (790).—Galicia, KLEMENSIEWICZ (499).—Bucovina, HORMUZAKI (414).—Tyrol, ELWES, P. E. Soc. 1892, p. xxvi.—South Tyrol, REBEL (716).—Carinthia, HONRATH (413).

*Diptera.* KIEFFER (492, 493, 494), MEADE (596), MIK (609), STROBL (902).—Belgium, L. COUCKE, Ann. Ent. Belg. xxxvi, pp. 134–139.—Hertogenwald, E. & L. COUCKE, Ann. Ent. Belg. xxxvi, pp. 462–469.—Switzerland, BECKER (45), BERGROTH (61), RÖDER, Wien. ent. Z. xi, p. 170.—Germany, LIEBEL (562), RÜBSAAMEN (786), STEIN (896).—Austria, STROBL (903, 905, 906).—Thuringia, RÖDER, Ent. Nachr. xviii, p. 204.

*Rhynchota.* Belgium, FOKKER, Ann. Ent. Belg. xxxvi, p. 170; Énumération des Hémiptères de Belgique. II. *Homoptera*: COUBEUX, Ann. Ent. Belg. xxxvi, pp. 34–36, & 80–83.—Catalogus der in Nederland voorkomende *Hemiptera*: Addenda et corrigenda, FOKKER, pp. 357–378, Tijdschr. Ent. xxxiv.—Lorraine, KIEFFER, Ent. Nach. xviii, p. 30.—Hungary, LETHIERRY (549).—Pressburg, SABRAUSKY, Verh. Ver. Pressburg (n.s.) vii, pp. 16–24.—DUDA, Schnabelkerfe Böhmens, cf. Wien. ent. Z. xi, p. 250.—St. Petersburg, CHOLODKOVSKY (172).

*Neuroptera.* Schwarzwald, McLACHLAN, Ent. M. M. xxviii, p. 79.—Germany, ROSTOCK (781).

(f.) *France* [see also (a.) (b.) and (g.)].

*Insecta.* Aude, Liste des espèces de *Diptères*, *Hémiptères* et *Hymenoptères* recueillies dans le département et principalement aux environs de Carcassonne, GAVOY, Bull. Soc. Aude, iii, pp. 255–298.—Auvergne, DESBROCHERS, Frelon, i, pp. 2–10.—Ria, XAMBEU, Soc. Agricole Pyrén.-orient. xxxiii, pp. 229–240.

*Coleoptera.* ABEILLE (1), BRISOUT (128), CHOBOUT (169), and Bull. Soc. Ent. Fr. lxi, p. ccxxiv; CROISSANDEAU (194), and p. cclviii, Bull. Soc. Ent. Fr. lxi; GRILAT (365); GUILLEBEAU (375, 376, 377); and Catalogue des *Coléoptères* du département de l'Ain, Échange, No. 54, &c., &c.; JACQUET, Échange, i, No. 6, p. 3; REY (736); Somme, COLIN, Bull.

Soc. L. Nord. France, x, pp. 212-216, and DELABY, *l. c.* pp. 308-314 ; Seine-inf., ÉTIENNE, Bull. Soc. d'Elbeuf, p. 61 ; Catalogue des *Coléoptères* du Finistère (completed), HERVÉ, Bull. Soc. Finistère, xii, pp. 81-127 : Supplément, pp. 129-132 ; Soulac, GOUIN, Act. Soc. L. Bord. v, p. clxi.

*Hymenoptera.* *Hyménoptères* de la Vendée, BLAND, Rev. Sci. Nat. Ouest, pp. 141-149.

*Lepidoptera.* CHRÉTIEN (174), CONSTANT (182), RAGONOT, p. clxiii, Bull. Soc. Ent. Fr. lxi ; Calvados, DUMANS, p. lxxii, Bull. Soc. Ent. Fr. lxi.—Elbeuf, DUPONT, Bull. Soc. d'Elbeuf, 1891, p. 43.—Alpes maritimes, BROMILOW, Ent. xxv, p. 245.—Contribution à la faune des *Lépidoptères* du sud-ouest de la France : Supplément aux Catalogues de M.M. Roger et Trimoulet, et Catalogue provisoire des *Pyrales* des environs de Bordeaux, BREIQUET, BROWN, Act. Soc. L. Bord. xlv, pp. 49-91.

*Rhynchota.* HORVATH (431), PUTON, Échange, 1890, No. 62, p. 110, and Rev. d'Ent. xi, pp. 31 & 32.—Catalogue des *Hémiptères*, (*Hétéroptères*, *Homoptères*, *Psyllides*) recueillis dans le département de la Loire-inférieure, DOMINIQUE, Bull. Soc. Sci. Nat. Ouest. France, 1892, pp. 81-130.—Matériaux pour la faune des *Hémiptères* de POise, CARPENTIER & DUBOIS, Mém. Soc. L. N. Fr. viii, pp. 406-440.

*Neuroptera.* MARTIN (587, 588, 589).

*Orthoptera.* FINOT (282) ; Matériaux pour le Catalogue des *Orthoptères* de la Somme, Bull. Soc. L. N. Fr. x, pp. 69-75.—Loire-inf., DOMINIQUE, pp. 146-148.

(g.) *Southern Europe and Mediterranean Basin* [see also (a.) and (b.)].

*Insecta.* Val Vigezzo, CARLINI, Bull. Ent. Ital. xxiv, pp. 83-91.—I. of Lampedusa, RAGUSA, Nat. Sicil. xi, pp. 234-238.

*Coleoptera.* ABEILLE (2), CHAMPION (163), LEWIS (557), PIC (678, 684, 687), ZOUFFAL (1026).—Spain, GUILLEBEAU (378), REITTER, p. 239, Wien. ent. Z. xi.—Italy, DODERO (219), GESTRO (332).—Val Pesio, GANGLBAUER (318).—Corsica, CROISSANDEAU (194), GUILLEBEAU (379).—I. of Capri, BLUM, Nachrichtsbl. deutsche Malak. Z. 1892, pp. 27 & 28.—Sicily, BAUDI (43), STIERLIN (898).—Syria and Cyprus, ABEILLE (1).—Bosnia, PIC (690).—S. E. Europe, REITTER (729).—Herzegovina, KNOTEK (500), GANGLBAUER (317).—Persia, HEYDEN, Deutsche c. Z. 1892, p. 111 ; BEDEL (48).—Algeria, GRILAT (364), GUILLEBEAU (374), LEWIS (560), PIC (680, 681, 686, 689, 691).—Egypt, PIC (685).—Asia Minor, FLEISCHER (284), PIC (679), THÉRY (922).—Syria, FAIRMAIRE (263), PIC (683, 688).

*Hymenoptera.* EMERY (250), FOREL (291), SAUSSURE (793), VACHAL (959).—Spain, MEDINA (598).—Andalusia, MEDINA, Act. Soc. Esp. xxi, pp. 145-148. — Sardinia, KRIECHBAUMER (526).—Italy, BENZI (55), COBELLI (176).—Trieste, GRÄFFE (358).—Dalmatia, GASPERINI (320), VERHOEFF (969).—Bulgaria, FOREL (289), SCHULTHESS-RECHBERG (803).—Algeria, LESNE (548).—Aden, FOREL (290).

*Lepidoptera.* ZAPATER, Catálogo de los Lepidópteros de la provincia de Teruel, Ann. Soc. Esp. xxi, pp. 103-159.—S. France, NICHOLSON, Ent. M. M. xxviii, p. 270.—N. Italy, NORRIS, Ent. xxy, pp. 239, &c.—Modena, POZZI, Note Lepidotterologiche, Atti Soc. Mod. (3) xi, pp. 1-11.—Sardinia, MABILLE (572).—Sicily, PÜNGELER (706).—Roumania, JOANNIS, Bull. Soc. Ent. Fr. lxi, pp. cxxxxix-cxxli; COSMOVICI (191).—Bucharest, MONTANDON, Bull. Soc. Ent. Fr. lxi, p. xlv.—Tunis, RAGONOT (711); STAUDINGER (890).—Aden, BUTLER (145); YERRURY (1025).

*Diptera.* PAVIA, BEZZI (79).

*Rhynchota.* Italy, Su alcuni Emitteri Eterotteri del Modenese, TESTI, Atti Soc. Mod. (3) xi, pp. 203-212. FERRARI (281).—Croatia, HORVATH, Glasnik Naravosl. Druzt. vi, pp. 29-49.—Algeria, MONTANDON (618).—Sahara, *Coccidae*, TARGIONI-TOZZETTI (912, 913); GIARD, Bull. Soc. Ent. Fr. lxi, p. cclxxiii.—Egypt, PUTON, Rev. d'Ent. xi, pp. 32-34.—Syria, PUTON (708).

*Neuroptera.* Contribuzione allo studio dei *Pseudoneurotteri* del Modenese, BENTIVOGLIO, Atti Soc. Mod. (3) xi, pp. 122-124.—NOVAK, Terzo cenno (*Neuropt.* and *Orthopt.*) sulla Fauna dell' Isola Lesina in Dalmazia, Glasnik Naravosl. Druzt. vi, pp. 50-58.

*Orthoptera.* Locusts near Florence, Bull. Ent. Ital. xxiv, pp. 164-169.—Trentino, COBELLI, Verh.-z.-b. Wien, xlii, p. 61.—NOVAK, Secondo cenno sulla Fauna dell' Isola Lesina in Dalmazia, Glasnik Naravosl. Druzt. v, pp. 119-128.—Bulgaria, FREY-GESSNER, MT. Schw. ent. Ges. viii, pp. 397-403.—N. Africa, KRAUSS (520).—Oran, OLIVIER, Bull. Soc. Ent. Fr. lxi, p. xlv.

#### (h.) *Caucasus and West and Central Asia*

[see also (a.) and (b.).]

*Coleoptera.* Caucasus, REITTER (727); ROST (780); WEISE (999).—W. Asia, BRENSKE (125); FAIRMAIRE (268, 271); FAUST (274); JACOBSON (445); PROCHAZKA (705); REITTER (725, 726, 728); SCHMIDT (801); SEMENOW (831, 832, 833); WEISE (992).—Turkestan, EPPELSHEIM (256); HEYDEN (402); WEISE (994).

*Lepidoptera.* W. Asia, ALPHERAKY (4).—Centr. Asia, GRAESER (357).

*Rhynchota.* W. Asia, HORVATH (429).

### 4. AFRICA (ETHIOPIAN REGION).

*Insecta.* DISTANT (210, 216).

*Rhynchota and Lepidoptera.* KARSCH (460).

*Coleoptera.* ALLUAUD (8); BRENSKE (122); DESBROCHERS (200); DUVIVIER (230, 231); FAIRMAIRE (262); GESTRO (329, 334); GORHAM (348); GORHAM & GAHAN (353); GROUVELLE (368); HORN (421, 423, 426); KERREMANS (482, 487, 488); KOLBE (502, 504, 505, 506, 507, 508); KRAATZ (514); LAMEERE (534); LEFÈVRE (543); LEWIS (558); NON-

FRIED (642, 648); PÉRINGUEY (672, 673); ROELOFS (774, 775); SCHMIDT (801, 802); SENNA (838); WASMANN (985); WEISE (993, 997, 998).

*Hymenoptera.* ANDRÉ (12); EMERY (252, 253); FOREL (290, 292); HANDLIRSCH (386); KELLER (475); KOHL (501); MAGRETTI (575); SAUSSURE (793); STADELMANN (883); VACHAL (960).

*Lepidoptera.* AURIVILLIUS (24); BUTLER (143); BUTLER & ROTHCHILD (147); HOLLAND (406, 407, 408); HONRATH (412); KARSCH (461, 462, 463, 464); KIRBY (497); MABILLE (571); MABILLE & VUILLOT (573); PAGENSTECHER (668); ROBBE (766); ROGENHOFER (778); SMITH & KIRBY (858); STAUDINGER (885, 888, 889); VUILLOT (978, 979, 980); WARREN (983); WEYMER (1003).

*Diptera.* BEZZI (80); BIGOT (85); BRAUER (116); BRAUER & BERGENSTAMM (119).

*Rhynchota.* BERGROTH (62, 68); CARLINI (158); DISTANT (210, 213, 218); GERSTAECKER (323); KARSCH (465); MONTANDON (618, 619, 620); REUTER (732).

*Neuroptera.* CALVERT (150); KARSCH (468); SELYS (825); KARSCH (469, 470, 471, 472); PICTET & SAUSSURE (692); REDTENBACHER (717).

## 5. MADAGASCAR.

*Insecta.* NOSSIBÉ, BRANCSIK (115).

*Coleoptera.* FAIRMAIRE (266, 267, 269).—Seychelles, FAIRMAIRE (270); HORN (421); JACOBY (447); KRAATZ (513, 517); LEWIS (555); NONFRIED (642, 648); ROELOFS (774).

*Hymenoptera.* FOREL (287); HANDLIRSCH (387); KOHL (501); SAUSSURE (793).

*Lepidoptera.* BUTLER (146); SMITH & KIRBY (858); WARREN (983).

*Rhynchota.* BERGROTH (72); DISTANT (214, 218); MONTANDON (619); REUTER (733).

*Neuroptera.* SELYS (825); Seychelles, CALVERT (150).

## 6. TROPICAL AND EASTERN ASIA WITH JAPAN.

For Aden (*Hymenoptera* and *Lepidoptera*) see 3 (g.).

*Insecta.* SEITZ (820); *id.*, China (821); *id.*, Japan (822, 823).

*Coleoptera.* ALLARD (7); AURIVILLIUS (25); BATES (37, 38); BEDEL (47); BELON (53); BERGÉ, pp. 239–241, Ann. Ent. Belg. xxxvi; BOURGEOIS (113); BRENSKE (122, 123, 125); BRONGNIART (133); CANDÈZE (152, 155); DESBROCHERS (200); DUVIVIER (232); FAIRMAIRE (267); FAUST (276); FRIVALDSZKY, China (309); GESTRO (324, 325, 326, 327, 328, 329, 330, 333); GORHAM (349, 351); GROUVELLE (367, 369, 370); GUILLEBEAU (378); HORN (421, 422, 424); JACOBY (446, 448); JANSON (454); KERREMANS (484, 489); KOLBE (506); KRAATZ (514, 516); LEFÈVRE (544); LESNE (547); LEWIS (553, 555, 558, 561); *id.*, Japan (554, 556); NONFRIED (642, 644, 647); OLIVIER (652); POLL (696);

RÉGIMBART (720, 723); RITSEMA (757); SCHMIDT (801); SCHENFELDT, Ann. Ent. Belg. xxxvi, pp. 107-111; SENNA (838, 839); SHARP (843); VILLARD, Japan (976); WEISE (997, 1001).

*Hymenoptera.* ANDRÉ (12); CAMERON (151); FOREL (290); FOREL, Ceylon (288, p. 17, 293); HANDLIRSCH (386); JAKOWLEW (453); KOHL (501); MAGRETTI (576); MOCSÁRY, China and Tibet (615); ROTHNEY, E. India ants, P. E. Soc. 1892, pp. viii-x; SAUSSURE (793); WROUGHTON, Ants of India (1018).

*Lepidoptera.* AUSTAUT, Japan (29); BUTLER, Ceylon (142); ELWES (248); HAMPSON, Moths of India, vol. i (384); LEECH (542); MANDERS (579); MOORE (622, 623); NICÉVILLE (638); OBERTHUR (650, 651); POUJADE (702); ROBBE (765); ROMANOFF, China and Mongolia (779); SEITZ (817, 818, 820, 821); SONTTHONNAX (878); PEKIN, STAUDINGER, Deutsche e. Z. Lep. iv, p. 339; India, SWINHÖE (908, 909); WARREN (983).

*Diptera.* BIGOT (83, 84, 85, 86, 87); BRAUER & BERGENSTAMM (119).

*Rhynchota.* BERGROTH (63, 66, 67, 70, 71); DISTANT (211, 212, 213, 217); HORVATH, Trop. Asia and Tibet (428); LETHIERRY (550); MASKELL, *Coccidæ* (500); MONTANDON (617, 618, 619, 620); REUTER, E. Siberia and Mongolia (730).

*Neuroptera.* EATON (241, 242); *id.*, Japan (243); KARSCH, China (467); SELYS (824).

*Orthoptera.* BRUNNER, Ceylon (137); PICTET & SAUSSURE (692).

## 7. ASIATIC ARCHIPELAGO, INCLUDING PAPUA.

*Coleoptera.* BOURGEOIS (112); Borneo, BOURGEOIS (114); BRENSKE (122, 123); CANDÈZE (156); *id.*, Engano (153); *id.*, New Guinea (154); DESBROCHERS (200); DOHRN, Philippines (221); FAIRMAIRE, Sumatra (265); FAUST (278); GESTRO (327, 329); *id.*, Engano (335); *id.*, New Guinea (331), and Ann. Mus. Genov. (2) x, pp. 265-268; GORHAM, Borneo (350); GROUVELLE (372); *id.*, Philippines (367); *id.*, Borneo (371); HELLER, Java (394); HORN (421, 424); JACOBY, Sumatra (448); JANSON (454); KERREMANS, Philippines (483); *id.*, Engano (485); *id.*, New Guinea (486); KOLBE (506); KRAATZ (514, 516); *id.*, Java (515); LEWIS (555); *id.*, Borneo (558); NONFRIED (642, 644); OLIVIER, New Guinea (653); RAFFRAY, Philippines (710); RÉGIMBART (721); *id.*, Borneo (722); RITSEMA (763, 764), and Notes Leyd. Mus. xiv, pp. 139, 143, & 144; *id.*, Java (759, 762); *id.*, Java and Nias I. (758); *id.*, Borneo (761); *id.*, Amboyna (760); ROELOFS, Borneo (772); *id.*, Aru Is. (776); SCHMIDT (801); SENNA, Java (837); SHARP, Java (844); TRYON, New Guinea (953); WATERHOUSE, Damma I. (988); WEISE (997); *id.*, Celebes (998).

*Hymenoptera.* ANDRÉ, Borneo (13); HANDLIRSCH (386); KOHL (501); STADELMANN (883).

*Lepidoptera.* BUTLER, Borneo (141); HAGEN, Banka (383); HEYLAERTS (403); HONRATH (412); MOORE (623); NICÉVILLE (638);

PAGENSTECHER (668); RIPPON, Aru Is. (756); RÖBER (767); ROGENHOFER, Sumatra (778); ROTHSCCHILD, Celebes (783), and ROTHSCCHILD, P. E. Soc. 1892, p. xv; SEMPER, Philippines (835); SMITH, Borneo (857); SNELLEN, Flores (869); *id.*, Java (872, 876); *id.*, Celebes (870); STAUDINGER, Borneo (892, 894); *id.*, Mindoro (888); SWINHÖE (908); TRYON, New Guinea (954); WARREN (983).

*Diptera.* BIGOT (85); BRAUER & BERGENSTAMM (119); RÜDER (771); WULP, Java (1019).

*Rhynchota.* BERGROTH (63); *id.*, Engano (66); DISTANT (212, 213); *id.*, Borneo (211); *id.*, Timor (215); TRYON, New Guinea (952).

*Neuroptera.* KARSCH, Java (466); SELYS (824).

*Orthoptera.* BOLIVAR (710); DOHRN (222); PICTET & SAUSSURE (692); REDTENBACHER (717).

## 8. AUSTRALIA AND TASMANIA.

*Insecta.* Tasmania, WALKER, Ent. M. M. xxviii, p. 153; Notes from Fremantle, &c., *id. t. c.* p. 55.

*Coleoptera.* BEDEL (47); *Scymnus lophanthæ* said to be Australian, Ent. News, iii, p. 144, note; BLACKBURN (90, 91, 92, 93, 94, 95); FAUST (277); LEWIS (555); NONFRIED (644); OLLIFF (655); POLL (697); ROELOFS (776); SCHMIDT (801); SHARP (843); SLOANE (852, 853).

*Hymenoptera.* FROGGATT (311, 312); HANDLIRSCH (386); KOHL (501); ROTHNEY, P. E. Soc. 1892, p. iii; SAUSSURE (793).

*Lepidoptera.* LOWER (565, 566); LUCAS (568, 569); MEYRICK (604); MISKIN (611, 612, 613); OLLIFF (654); a list of Victorian *Rhopalocera*, SPRY & ANDERSON, Vict. Nat. ix, pp. 121-123; SWINHÖE (908).

*Diptera.* BIGOT (83, 85); BRAUER & BERGENSTAMM (119); RÜDER (771).

*Rhynchota.* Murray I. and Mabuiag, CARPENTER (159); DISTANT (212, 213, 214, 217); MASKELL (590, 592).

*Orthoptera.* REDTENBACHER (717); SAUSSURE (795); TEPPER (916, 917).

## 9. NORTH AMERICA.

*Insecta.* GODMAN & SALVIN (347); JAMESBURG, Ent. News, iii, p. 36.—Catalina I., SEAVEY, Zoe, iii, pp. 262 & 263.—New Mexico, TOWNSEND (941).—Mississippi Bottoms, WEED, Canad. Ent. xxiv, pp. 276-279.—Alaska, WICKHAM (1007).—Ottawa, numerous records by HARRINGTON and J. F. in Ottawa Natural. 1892. Insects in *Cryptoporus valvatus* in British Columbia, HUBBARD, Canad. Ent. xxiv, pp. 250-256.

*Coleoptera.* ANGELL (14); BLAISDELL, San Diego, Zoe, iii, pp. 47-49, 102, 252.—BLAISDELL (96, 97, 98); BRENDL (120, 121); CASEY (161, 162); San Francisco, DUNN, Zoe, ii, p. 310; N. Brunswick, HARRINGTON, Canad. Ent. xxiv, p. 112; *id.* (389); HORN (416, 417, 418, 418); W. HORN (421); SCHWARZ (805); WICKHAM (1009),

*id.*, Bull. Lab. Iowa, ii, p. 234; *id.*, Alaska (1006); *id.*, Iowa, Canad. Ent. xxiv, pp. 99-101.

*Hymenoptera*. ASHMEAD (17, 18, 19, 20, 21, 22); BRODIE (129); FOX (298 to 306), and Ent. News, iii, p. 17; FYLES (314); GILLETTE (344); HANDLIRSCH (386); HARRINGTON (388); HOWARD (433, 435); KOHL (501); PATTON (670); ROBERTSON (768).

*Lepidoptera*. Catalogue, SMITH (859).—DYAR (238, 239, 240); EDWARDS (246, 247); FERNALD (280); HULST (441); KELLICOTT (477); NEUMOEGER (633, 634); NOLAN (641); PAGENSTECHER (668); RILEY (744); SKINNER (847, 848, 849); SLOSSON (854, 855); SMITH (860, 861, 863, 867); WARREN (983); WRIGHT (1017).—Ohio, KELLICOTT, Canad. Ent. xxiv, p. 42.—Adirondack, McKNIGHT, Ent. News, iii, pp. 87-89.—N. Carolina, MEAD, Canad. Ent. xxiv, p. 313; MOFFAT, Canad. Ent. xxiv, pp. 18 & 132.—Alaska, WRIGHT, Ent. News, iii, p. 74.—A list of the Butterflies found at Marshall, Missouri, and vicinity, STALEY, Canad. Ent. xxiv, pp. 201-204.—Colorado, BRUCE, Ent. News, iii, p. 136, and COCKERELL, p. 192, Canad. Ent. xxiv.—Notes on some of the Butterflies of the Yosemite Valley and adjacent region, VAN DYKE, Zoe, iii, pp. 237-241.—Pennsylvania, EHRMAN, Ent. News, iii, p. 168.

*Diptera*. ALDRICH (5, 6); BIGOT (83, 85); BRAUER & BERGENSTAMM (119); COQUILLETT (185, 186, 187, 188, 189, 190); HOOD, Psyche, vi pp. 283 & 284; SNOW (877); TOWNSEND (931, 933, 934, 935, 936, 937, 938, 939, 940, 942, 943), and Psyche, p. 220; WILLISTON (1011).

*Rhynchota*. BERGROTH (64); DUZEE (233, 234, 235, 236, 237); GODING (345, 346).—Fauna ottawaensis. *Hemiptera*, Ottawa Natural. pp. 25-32.

*Neuroptera*. BANKS, Catalogue (33); Canada, MOFFAT, Canad. Ent. xxiv, p. 11.—*Odonata* of Maine, WADSWORTH, Ent. News, iii, p. 8, and HARVEY, *t. c.* pp. 92 & 116.

*Thysanura*. HARVEY (390, 391).

*Orthoptera*. BLATCHLEY (104, 105); SCUDDER (816).

## 10. CENTRAL AMERICA, INCLUDING MEXICO.

*Insecta*. GODMAN & SALVIN (347).

*Coleoptera*. BATES (36); CASEY (162); FAUST (273); GAHAN (315); HORN (426); KRAATZ (518); LEWIS (559); NEVINSON (635); NON-FRIED (642-645).

*Hymenoptera*. HANDLIRSCH (386); KOHL (501); SAUSSURE (793).

*Lepidoptera*. DRUCE (226); PAGENSTECHER (668); RILEY (750); SCHAUS (798, 799); THIERRY-MIEG (923).

*Diptera*. BIGOT (83, 85); BRAUER & BERGENSTAMM (119); GIGHIOTOS (342); MIK (606); TOWNSEND (938).

*Rhynchota*. BERGROTH (65); DISTANT (214); DUGÈS (229),

*Orthoptera*. PICTET & SAUSSURE (692); SAUSSURE (794).

1892. [VOL. XXIX.]

## 11. ANTILLES.

*Insecta.* Jamaica, COCKERELL (179), and *J. Inst. Jamaica*, i, pp. 71-74.  
—Grenada, *Rep. Brit. Ass.* 1892, pp. 353 & 354.

*Coleoptera.* FAUST (273).

*Hymenoptera.* Jamaica, ANDRÉ (12); Jamaica, FOX, *Ent. News*, iii, p. 226; Cuba, ASHMEAD (19).

*Lepidoptera.* PAGENSTECHER (668); St. Lucia, SCHAU (798) p. 10; WEIR, *J. Inst. Jamaica*, i, p. 106.—Bahamas, see N. America.

*Diptera.* Haiti, BIGOT (83, 85); BRAUER & BERGENSTAMM (119).—Jamaica, COCKERELL (180); TOWNSEND (931, 932, 946, 947).

*Rhynchota.* Jamaica, JOHNSON & FOX, *Ent. News*, iii, p. 59.

*Orthoptera.* St. Vincent, BRUNNER & REDTENBACHER (138).

## 12. SOUTH AMERICA.

*Insecta.* GODMAN & SALVIN (347); MEINERT (599).

*Coleoptera.* BEDEL (47); BERG (57); DESBROCHERS (206); FAIRMAIRE (261, 264); FAUST (273, 275, and 278, p. 203); FLEUTIAUX (285); GAHAN (316); GERMAIN, Chili (322); GROUVELLE (366); HORN (421, 425); LÉVEILLÉ (552); NEVINSON (635); RUGE (788); SENNA, Chili (838).

*Hymenoptera.* ANDRÉ (12); BUYSSON & MARSHALL (149); FOREL (290, 295); HANDLIRSCH (386); KOHL (501); SAUSSURE (793); STADELMANN (883).

*Lepidoptera.* BUTLER (145); DOGNIN (220); DRUCE (225); KIRBY (497); OBERTHUR (650); PAGENSTECHER (667, 668); SCHAU (798, 799); SMITH & KIRBY (858); STAUDINGER (893); THIERRY-MIEG (923); VUILLOT (980); WARREN (983); Brief aus Bolivien, GARLEPP, *Deutsche e. Z. Lep.* v, pp. 272-276.

*Diptera.* ARRIBALZAGA (15); BIGOT (83, 85, 87); BRAUER & BERGENSTAMM (119); MIK (606); OSTEN-SACKEN (663); RÖDER (769); WILLISTON (1010); WULP (1019).

*Rhynchota.* BERG (56); BERGROTH (65); DISTANT (213, 214); DOUGLAS, Coccids (224); MORGAN (625); REUTER (731).

*Orthoptera.* REDTENBACHER (717).

## PALÆO-ENTOMOLOGY.

[*Cf.* EMERY (249), MEUNIER (602), MOBERG (614), SCHÄFF (797), SCHLECHTENDAL (800), SCUDDER (814).]

## COLEOPTERA.

*Coleoptera* in peat; SCHÄFF (797).

Remarks on, with summary of, the N. American Tertiary *Rhynchophorous* fauna; SCUDDER (814).

## HYMENOPTERA.

*Ectatomma gracile*, Sicilian amber; EMERY, p. 145, pl. i, figs. 1 & 2, Mem. Acc. Bologn. (5) i, n. sp.

*Ponera*? *leptocephala*, Sicilian amber; EMERY, p. 146, pl. i, figs. 3 & 4, Mem. Acc. Bologn. (5) i, n. sp.

*Cataulacus silvestrii*, p. 147, pl. i, figs. 5-7, *planiceps*, p. 148, figs. 8 & 9, Sicilian amber; EMERY, Mem. Acc. Bologn. (5) i, n. sp.

*Hypopomyrmex*, n. g., near *Strumigenys*, p. 148, for *H. bombiicii*, n. sp., p. 149, pl. i, figs. 10 & 11; EMERY, Mem. Acc. Bologn. (5) i.

*Acrostigma*, n. subg. of *Podomyrma*, p. 149, for *P. (A.) mayri*, n. sp., Sicilian amber, p. 150, pl. ii, figs. 12-16; EMERY, Mem. Acc. Bologn. (5) i.

*Äöromyrma sophia*, Sicilian amber; EMERY, p. 151, pl. ii, figs. 17 & 18, Mem. Acc. Bologn. (5) i, n. sp.

*Crematogaster præcursor*, Sicilian amber; EMERY, p. 152, pl. ii, figs. 19-21, Mem. Acc. Bologn. (5) i, n. sp.

*Leptomyrmex maravignae*, Sicilian amber; EMERY, p. 152, pl. ii, fig. 22, Mem. Acc. Bologn. (5) i, n. sp.

*Tapinoma minutissimum*, Sicilian amber; EMERY, p. 153, pl. iii, figs. 24 & 25, Mem. Acc. Bologn. (5) i.

*Technomyrmex deletus*, Sicilian amber; EMERY, p. 153, pl. iii, figs. 26-28, Mem. Acc. Bologn. (5) i, n. sp.

*Plagiolepis labilis*, Sicilian amber; EMERY, p. 154, pl. iii, figs. 29-32, Mem. Acc. Bologn. (5) i, n. sp.

*Gesomyrmex corniger*, Sicilian amber; EMERY, p. 155, pl. iii, figs. 33-35, Mem. Acc. Bologn. (5) i, n. sp.

*Ecophylla sicula*, Sicilian amber; EMERY, p. 156, pl. iii, figs. 36 & 37, Mem. Acc. Bologn. (5) i, n. sp.

## DIPTERA.

*Leptidæ* in amber; MEUNIER, p. lxxxiii, Bull. Soc. Ent. Fr. lxi (provisional new genus, *Palæochrysopila*).

*Dolichopodidæ* found in amber, notes on; MEUNIER (602).

## RHYNCHOTA.

*Protocimex siluricus*, Silurian of Sweden; MOBERG, Geol. Fören. Stockholm Förh. xiv, p. 121, n. sp.

*Notonecta*, note on fossil; SCHLECHTENDAL (800).

## IV.—ECONOMIC.

Reports: LINTNER (564); ORMEROD (656).—Report on the position of economic entomology in Europe; BOS, Tijdschr. Ent. xxxv, pp. xlvii-lxviii: on the ravages of *Xyleborus perforans* in the West Indies; BLANDFORD (100).—Insects injurious to *Coniferæ* in Britain; BLANDFORD (99).—Various notes on injurious insects in Rep. E. Soc. Ont. xxiii,

by BETHUNE, MOFFAT, FLETCHER. — For various notes on injurious insects, see *Ins. Life*, iv & v, *passim*.—Report on economic entomologists' work in N. America in 1891, see *Bull. Dep. Agric. Ent.* xxvi.

*Bruchus obtectus*, oviposition, &c. ; RILEY (752, 753, 755).—"Entomological Notes" on various insects injurious in Australia ; OLLIFF, in *Agric. Gaz. N.S.W.* iii, pp. 26, &c., &c.—Injurious insects in Kazan district ; SMIRENSKY (856).—Injurious insects in Sweden in 1891 ; LAMPA (536) pp. 1-38.

Use of hellebore for destroying larvæ ; SMITH, *Ent.* xxv, p. 80.—Destruction of insects by fungi ; DECAUX, p. 196, *Le Nat.* 1892.—Experiments on infecting Chinch-bugs ; SNOW, *Tr. Kansas Ac.* xii, pp. 34 & 119, and *Psyche*, vi, pp. 225-233.

Destruction of *Melolontha* in Spain ; DELACROIX, *Act. Soc. Esp.* xxi, pp. 3-7.—Destruction of *Melolontha* by *Botrytis*, experiments ; DUFOUR (228).—Elaterid injurious to wheat in Argentine Rep. ; BERG (57).—Longicorn attacking orange trees in Australia ; OLLIFF (655).—*Oncoscelis sulciventris* injurious to oranges in Australia ; OLLIFF, p. 368, *Agric. Gaz. N.S.W.* iii.—*Carpocapsa pomonella* in Australia ; *Agric. Gaz. N.S.W.* iii, p. 504, pl. xxxiii.—Ravages of *Phædon cochleariæ* ; ENOCK, *Ent.* xxv, pp. 230-233.—*Galeruca xanthomelæna*, notes on ; SMITH, *Canad. Ent.* xxiv, pp. 246-250.—*Selandria cerasi* in Australia ; OLLIFF, p. 27, *Agric. Gaz. N.S.W.* iii.—Habits of *Hypoderma lineata* ; RILEY (754).—*Hylemyia nigrescens*, destructive to carnations ; MACLACHLAN, *Ent. M. M.* xxviii, p. 135.—*Chlorops pumilionis*, metamorphoses ; LAMPA (538).—*Chlorops teniopus*, Meig, ravages in Sweden ; HEDSTRÖM, *Ent. Tidskr.* xiii, pp. 201-203.—Ravages of *Oscinis frit* in Sweden ; AURIVILLIUS (28).—Horn-fly in Florida ; ROLFS, *Bull. exp. Station Florida*, xvii, pp. 12-14.—*Hæmatobia serrata* in Canada ; WINN (1013).—*Lepidoptera* injurious to sugar cane in Java ; SNELLEN (872, 873).—*Diatræa saccharalis* in Jamaica ; COCKERELL (177).—*Ocneria dispar*: special report of the State Board of Agriculture on the work of extermination. Boston : 1892. *Cf.* *Canad. Ent.* xxiv, p. 156.—*Liparis monacha* in Germany ; FERNOW, pp. 172, 216, & 237, *P. E. Soc. Wash.* ii.—*Liparis monacha* in Germany and Switzerland ; FENK (279).—*Grapholitha tedella*, injurious to *Abies excelsa* ; PUTON, p. x, *Bull. Soc. Ent. Fr.* lxi.—*Ctenopseustis obliquana*, ravages in N. Zealand ; SMITH, *Ent. M. M.* xxviii, p. 110.—*Lita solanella* in America ; *Ins. Life*, iv, p. 241.—*Lithocolletis platana*, injurious at Perpignan ; XAMBEU, p. 244, *Soc. Agricole Pyrén.-orient.* xxxiii.—*Lampronia capitella*, life-history ; CHAPMAN (164).—*Halticus minutus* injurious to *Arachis hypogæa* ; GIARD (337).—*Psylla pyricola*, report on ; SLINGERLAND (851): *P. pyricola* in N. America ; *id.* *Ins. Life*, v, p. 100-104.—Injury to *Laurus nobilis* by *Trioza alacris* ; THOMAS (926).—*Phylloxera*, destruction of in vineyards ; BEHR (52).—Spread of *Phylloxera* in Germany, and cost of combating it ; KESSLER (491).—*Schizoneura lanigera* in Australia ; OLLIFF, *Agric. Gaz. N.S.W.* iii, p. 26.—Locusts near Florence ; *Bull. Ent. Ital.* xxiv, pp. 164-169.—Locust in Algeria in 1891 ; KUNCKEL (531, 532).—Destruction of locusts in N. Africa ; DECAUX, *Le Nat.* 1892,

pp. 168 & 213.—The locust in Egypt in 1891, and mode of its destruction; Agric. Gaz. N.S.W. iii, pp. 829-832.—Destructive locusts in N. America in 1891; BRUNER, COQUILLETT, & OSBORN (136).—*Gryllus servillei* injurious to trees in Australia; OLLIFF, Agric. Gaz. N.S.W. iii, p. 270.

Insects and Flowers: KUNZE (533).—Fertilization of *Ficus roxburghii* by *Psenes*; CUNNINGHAM (195).—*Pronuba* and *Yucca*; RILEY (741).—Insects frequenting *Yucca* blooms; TOWNSEND (948).—An insectivorous primrose; MALLY (577).—*Cnicus discolor* as an insect trap; BLATCHLEY, p. 310, Canad. Ent. xxiv.—Bees as fertilizers; BENTON, Ins. Life, iv, p. 254.—Bees and flowers: constancy to various kinds of flowers; BULMAN, Sci. Goss. 1892, p. 98.)

Insects attacking man: *Æstrides* in America; BLANCHARD (101, 102).—*Æstrus* in man; SANGAGLI (791)—The bite of *Leptis scolopacea*; HEIM, p. c, Bull. Soc. Ent. Fr. lxi, and t. c. pp. clv-clvii.

Cutaneous larvæ; GERMAIN, p. 59, Act. Soc. Chili, i.—*Diptera* as carriers of infection; SAWTSCHENKO (796).

Collections: Collection and preservation of insects in the tropics; KANNEGIETER (459).—Method of preparing Cecidomyiid larvæ; THOMAS, Verh.-z.-b. Wien, xlii, p. 356.—Mode of preparing Lepidopterous larvæ, with fig. of the apparatus; OUDEMANS (664).—Mode of preparing eggs for investigation; HENKING (396).—Collecting and preserving *Coleoptera* in the Tropics; RIBBE, pp. 125-138, Berl. Ent. Zeit. xxxvii.—Effects of coloured glass in preventing fading of *Lepidoptera*.—Collections of *Coleoptera*; LEPRIEUR (546).—Occurrence of verdigris in *Coleoptera*; SCHWARZ (807).—The use of silver pins; SHARP, Ent. xxv, p. 54.—Cement for use in closing bottles containing alcohol; LATASTE (539).—Relaxing *Lepidoptera*; CANT, Ent. xxv, p. 119.—Packing specimens of insects for transportation; Canad. Ent. xxiv, pp. 117 & 118.—Notes on killing, preserving, and relaxing insects; FLETCHER, Canad. Ent. xxiv, pp. 14-16.—Bait for *Lepidoptera*; STRECKFUSS, Berl. Ent. Zeit. xxxvi, p. xix.

Account of the Berlin Museum and the number of species it contains; ASHMEAD (16).—List of types and of rare species of aquatic *Coleoptera* in the National Museum at Brussels; SEVERIN (841).—Catalogue of Coleopterous larvæ in the collection at Copenhagen; MEINERT, Ent. Medd. iii, pp. 167-205.—Study of the types of *Anthomyiidae* in the Zetterstedt Collection at Lund; STEIN (895).—Albarda's Collection of *Neuroptera* placed in the Leyden Museum; Ent. News, iii, p. 259.

Account of the collections of *Coleoptera* of H. W. Bates; OBERTHUR, p. cviii, Bull. Soc. Ent. Fr. lxi.—Lists of types of Grote & Robinson's *Lepidoptera* in the American Museum; BEUTENMÜLLER (76).

History of the Entomological Club of London; SOUTH (880).

## V.—BIBLIOGRAPHY, NOMENCLATURE, BIOGRAPHY.

1. *Bibliography.* Piller & Mitterpacher: BEDEL reproduces the descriptions of *Coleoptera* described as new in the "Iter per Poseganam;" Abeille, xxvii, pp. 291-300.—Clerck's *Icones*, account of, by HOLLAND, *Canad. Ent.* xxiv, pp. 83-87.—Notes on the bees described in Gay's *Chili*; REED (719).—Critical and synonymical review of Saalmüller's work on Madagascar *Lepidoptera*; SNELLEN (875).—Bibliography of Scandinavian Entomological literature, continued by BERGROTH & AURIVILLIUS in *Ent. Tidskr.* xiii.

2. *Nomenclature.* Rules of nomenclature adopted by the Zoological Congress at Moscow; *Zool. Anz.* xv, pp. 440-443.—Query as to the mode of procedure in some cases of double employment of names; DALLA TORRE, p. 92, *Wien. ent. Z.* xi.—Variable priority; BECKERS, p. 318, *Wien. ent. Z.* xi.—"Correct" names; MASKELL, *Tr. N. Z. Inst.* xxiv, p. 9.—On the distinction of generic names; CASEY, *Ann. N. York Ac.* vi, pp. 10-12.—Classical emendations; SHARP, *Ent. M. M.* xxviii, p. 111.—The use of capital small letters for personal specific names; KRAATZ, *Deutsche e. Z.* 1892, p. 380.

3. *Biographical.* Correspondence between Harris, Say, and Pickering (continued); *Psyche*, vi, pp. 297, 298, & 345.—Biographical notes, with portraits, have appeared in *Brit. Nat.* ii, of Lord Walsingham, p. 20; S. J. Capper, *t. c.* p. 60; E. A. Ormerod, *t. c.* p. 82; J. W. Douglas, *t. c.* p. 128; G. T. Porritt, *t. c.* p. 172; D. Sharp, *t. c.* p. 199; *Rev. O. P. Cambridge*, *t. c.* p. 231; H. W. J. Vaughan, *t. c.* p. 258.

*Obituary Notices.* Francis Archer; *Ent. M. M.* xxviii, p. 112, and *Ent.* xxv, p. 100.—H. W. Bates: by A. R. W., *Nature*, xlv, p. 398; by E. CLODD (39); by McLACHLAN, *Ent. M. M.* xxviii, p. 83; by D. S., with portrait, *Ent.* xxv, pp. 77-80.—Edward Burgess, with list and account of his writings, SCUDDER, *P. Bost. Soc.* xxv, pp. 358-364.—Hermann C. C. Burmeister: *Ent. Nachr.* xviii, pp. 220-222; *Ent. M. M.* xxviii, p. 221; Account of his funeral, *An. Soc. Arg.* xxxiii, pp. 145-150.—G. Carlet: *Le Nat.* 1892, p. 152; *Bull. Soc. Ent. Fr.* lxi, p. cxxix; with list and abstracts of his memoirs, CHAUMAT (167).—F. B. Caulfield; *Canad. Ent.* xxiv, p. 104.—Dr. C. A. Dohrn: *Ent. M. M.* xxviii, p. 164; by GROTE, *Canad. Ent.* xxiv, pp. 181, 182.—Prof. Veit Graber, with portrait and list of his writings, by JAWOROWSKI, *Wien. ent. Z.* xi, p. 253.—George Haggard; *Ent. M. M.* xxviii, p. 112.—J. T. Harris; *Ent. M. M.* xxviii, p. 291.—Dr. Ernst Hofman; *Wien. ent. Z.* xi, p. 120; *Deutsche e. Z. Lep.* v, pp. 459-463.—Dr. E. Killias; *MT. Schw. ent. Ges.* viii, pp. 373-375.—Eugène Lemoro; *Bull. Soc. Ent. Fr.* lxi, p. xcii.—Sir W. Macleay; *P. Linn. Soc. N.S.W.* (2) vi, pp. 707-716.—Adrien Maurissen, by SELYS-LONGCHAMPS, *Ann. Ent. Belg.* xxxvi, p. 389.—N. G. Moe, by SCHÖYEN, with portrait, *Ent. Tidskr.* xiii, p. 275.—L'Abbé Léon Provancher; *Ent. M. M.* xxviii, p. 247; by W. H. H.,

Canad. Ent. xxiv, p. 130.—G. Quedenfeldt, by KOLBE, Berl. Ent. Zeit. xxxvii, pp. 241-246, portrait.—Max Quedenfeldt: Berl. Ent. Zeit. xxxvi, p. 473.—Eugène Revelière, by REY, Échange, 1892, p. 31; Bull. Soc. Ent. Fr. lxi, p. lxii.—Dr. P. Richter; Berl. Ent. Zeit. xxxvi, p. 472.—Max Saalmüller, by HONRATH, Berl. Ent. Zeit xxxvi, pp. 468-471; by HEYDEN, Deutsche e. Z. Lep. v, pp. 453-459.—Charles Smethurst, with portrait, Naturalist, 1892, p. 145.—Bruno Sperrhaken; Deutsche e. Z. Lep. v, p. 463.—W. Thompson; Ent. xxv, p. 328.—H. Tieffenbach; KRAATZ, Deutsche e. Z. 1892, p. 12.—H. W. J. Vaughan; Ent. M. M. xxviii, p. 291; Ent. xxv, p. 300; and Rev. A. H. Wratishaw; Ent. xxv, p. 328.

## VI.—SYSTEMATIC.

N.B.—The reference-numbers collected under the headings of the various groups refer to "Titles," and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

(A.) *COLEOPTERA*.

Glandular structures in elytra ; HOFFBAUER (405).

Early stages of embryology ; HENKING (396).

Series defined ; JACQUET (449).

## CICINDELIDÆ.

[*Cf.* BLACKBURN (95), G. H. HORN (420), W. HORN (421 to 426), KOLBE (504), PÉRINGUEY (672, 673), RUGE (788).]

List of some recent additions to the Catalogue of *Cicindelidæ* ; HORN, Deutsche e. Z. 1892, pp. 222-224.

For many suggestions as to synonymy and varietal forms in *Cicindelidæ*, not here specially alluded to, see HORN, iii Beitrag zur Kenntniss der *Cicindeleten*, Deutsche e. Z. 1892, pp. 209-219.

Nomenclature of varieties discussed ; BEUTHIN, Ent. Nachr. xviii, p. 290.

*Caledonica acentra*, Chd., = (*bavayi*, Fauv.) ; HORN, p. 93, Deutsche e. Z. 1892.

*Cicindela* : variations in markings of N. American ; HORN, Ent. News, iii, p. 25, pl. i. Numerous synonymical remarks, pp. 95-98, *C. kaleea*, Bates, = (*mandarina*, Fleut.), p. 95, *C. tenuisignata*, Lec., = (*psilogramma*, Bates), p. 97, *C. interrupta*, Fab., = (*circumcincta*, Cast.), p. 98 ; HORN, Deutsche e. Z. 1892. *C. tenuicincta* and *latisignata*, notes on ; BLAISDELL, Zoe, iii, pp. 47 & 48. *C. discreta*, n. varr. *reducta*, *subfasciata* ; HORN, p. 370, Deutsche e. Z. 1892. *C. flexuosa*, variation, with many new names ; BEUTHIN, pp. 333-335, Ent. Nachr. xviii. *C. litoralis*, variation, with new names ; *id.* pp. 359-362, 376, & 377, t. c.

*C. (Cratohærea-Odontochila) cratohæroides*, Guinea, p. 220, *C. (Odontochila) hennebergorum*, Njam-Njam, p. 221, HORN, Deutsche e. Z. 1892 ; *C. junkeri*, Njam-Njam, KOLBE, p. 144, S. E. Z. liii ; *C. jucunda*, S. W. Africa, PÉRINGUEY, p. 4, Tr. S. African Phil. Soc. vi, 2 ; *C. ganglbaueri*, Ceylon, HORN, p. 95, Deutsche e. Z. 1892 ; *C. chevrolati*, Yucatan, HORN, p. 371, Deutsche e. Z. 1892 ; *C.*

*staudingeri*, Sao Paulo, HORN, Deutsche e. Z. 1892, p. 368; *C.* (n. g.?) *paradoxa*, Ceylon, p. 75, *interposita*, p. 76, Philippines, *guineensis*, N. Guinea, *affinis*, Venezuela, *elegantissima*, p. 77, *catoptroides*, Sumatra, *longipalpis*, Java, p. 78, *gestroi*, Sumatra, *labiocænea*, Ceylon, p. 79, *seriepunctata*, *dubia*, E. India, *tenuilineata*, Madagascar, p. 80, *nivicinctoides*, Malay Archipelago, *incerta*, Philippines, *elongata*, Celebes, p. 81, *differens*, Zanzibar, *incognita*, New Zealand, p. 82, *novæseelandica*, p. 83, New Zealand, *laphyricornis*, Caffraria, p. 84, *securiformis*, Cape of Good Hope, *drakei*, Mendoza, p. 85, *unicolor*, Argentine Mountains, *despectata*, Philippines, *plumigera*, Trichinopolis, p. 86, *C. (Calochroa) ceylonensis, cyanea* (Fab.), Bengal, p. 87, *C. prodotiformis*, W. Africa, p. 88, HORN, Deutsche e. Z. 1892 : n. spp.

*Collyris*: many synonymical and varietal observations on species of; HORN, Deutsche e. Z. 1892, pp. 354-368. *C. filiformis* and *cribrosa* are one species; HORN, p. 92, *t. c.*

*C. rugei*, Mindanao, p. 354, *batesi*, E. India, p. 355, *thoracica*, hab.?, p. 356, *labiomaculata*, Borneo, p. 357, *angularis*, p. 358, *erichsoni*, p. 359, Philippines, *spuria*, Sumatra, p. 360, *speciosula*, Palawan, *similis*, p. 331, *chaudoiri*, p. 362, *affinis*, p. 363, Philippines, *flautiauxi*, Borneo, p. 364, *kraatzi*, Java, *roeschei*, Calcutta, p. 365, *schaumi*, Cornwallis, p. 366, HORN, Deutsche e. Z. 1892, n. spp.

*Cosmena intermedia*, Caffraria, HORN, p. 68, Deutsche e. Z. 1892, n. sp.

*Ctenostoma hirsutum*, Brazil, HORN, Deutsche e. Z. 1892, p. 66, n. sp.

*Derocrania schauumi*, Ceylon, HORN, p. 67, Deutsche e. Z. 1892; *D. flavicornis*, Ceylon, HORN, p. 92, *t. c.* : n. spp.

*Distipsidera gruti*, var., = (*plustchewskyi*, Dok.), and *D. fasciata*, Motsch., = (*volitans*, MacL.) ; HORN, p. 93, Deutsche e. Z. 1892.

*Dromica 5-costata*, Natal, HORN, p. 67, Deutsche e. Z. 1892, n. sp.

*Euryoda similis*, Guinea, p. 70, *madagascariensis*, Nossi-bé, p. 71, HORN, Deutsche e. Z. 1892, n. spp.

*Heptodontia*, Hope, = (*Eurytarsa*, Dok.), HORN, p. 94, Deutsche e. Z. 1892.

*Manticora*, the species noticed; PÉRINGUEY, p. 3, Tr. S. African Phil. Soc. vi, 2 : the true species of; HORN, p. 144, Deutsche e. Z. 1892.

*Megacephala denticollis*, ♂ character; HORN, p. 144, Deutsche e. Z. 1892.

*M. kruperi*, W. Africa, HORN, p. 91, Deutsche e. Z. 1892; *M. angulicollis*, Victoria Nyanza, KOLBE, p. 145, S. E. Z. liii : n. spp.

*Megalomma schauumi*, Madagascar, *fulgens*, Bourbon, p. 73, *affine*, Madagascar, p. 74, HORN, Deutsche e. Z. 1892, n. spp.

*Myrmecoptera schauumi*, E. Africa, HORN, p. 220, Deutsche e. Z. 1892; *M. erikssoni*, S.W. Africa, PÉRINGUEY, p. 5, Tr. S. African Phil. Soc. vi, 2; *M. limpopoiana, junodi*, S. Africa, PÉRINGUEY, p. 95, *t. c.* : n. spp.

*Odontochila confusa*, Dej., and *aperta*, Kl., distinctions of; HORN, p. 94, Deutsche e. Z. 1892. *O. batesi*, n. var. *semicincta*; HORN, p. 69, Deutsche e. Z. 1892.

*O. chrysopyga*, W. Africa? HORN, p. 70, Deutsche e. Z. 1892, n. sp.

- Omus hornianus*, California? HORN, p. 91, Deutsche e. Z. 1892, n. sp.  
*Ophryodera rufo-marginata*, n. var. *erikssoni*; PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, p. 4.  
*O. richteri*, W. Africa, HORN, p. 72, Deutsche e. Z. 1892, n. sp.  
*Oxychila*; *Cophognathus* is a subgen. only, *C. opacipennis* = (*O. batesi*, HORN); HORN, p. 143, Deutsche e. Z. 1892.  
*O. batesi*, Sao Paulo, *similis*, Rio Grande do Sul, HORN, p. 89, Deutsche e. Z. 1892, n. spp.  
*Oxygoniola*, n. g., near *Oxygonia*, for *O. chamaleon*, n. sp., Celebes, p. 71; HORN, Deutsche e. Z. 1892.  
*Togonostoma pusillum*, n. var. *flavomaculatum*; HORN, p. 372, Deutsche e. Z. 1892.  
*P. bispinosum*, *bidentatum*, Madagascar, HORN, Deutsche e. Z. 1892, p. 65, n. spp.  
*Styphloderma schaumii*, Soudan, HORN, p. 369, Deutsche e. Z. 1892, n. sp.  
*Tetracha lucifera*, n. var.? *erichsoni*; HORN, p. 369, Deutsche e. Z. 1892. *T. sobrina* not distinct from *sommeri*; HORN, p. 144, Deutsche e. Z. 1892.  
*T. njam-njamensis*, Africa, *thoracica*, Amazons, p. 90, HORN, Deutsche e. Z. 1892; *T. helmsi*, W. Australia, BLACKBURN, p. 16, Tr. R. Soc. S. Austr. xvi; *T. horni*, Peru, RUGE, p. 130, Deutsche e. Z. 1892; n. spp.  
*Tetreurytarsa*, n. g., for *Euryoda tetrasticta*; HORN, p. 94, Deutsche e. Z. 1892.  
*Therates labiatus*, *coracinus*, *fulvipennis*, *bidentatus*, *caligatus* are one species; HORN, p. 94, Deutsche e. Z. 1892.  
*T. schaumii*, Borneo, HORN, p. 69, Deutsche e. Z. 1892, n. sp.  
*Thopentica theratoides*, n. var. *albapicalis*, *T. eximia*, n. var. *fulvescens*; HORN, p. 74, Deutsche e. Z. 1892.  
*T. schaumii*, Celebes, HORN, Deutsche e. Z. p. 75, n. sp.  
*Tricondyla aptera*, varr. (*pedestris* and *chevrolati*), *T. cyanea* var. = (*wallacei*); HORN, p. 93, Deutsche e. Z. 1892. *T. cyanea*, n. var., *paradoxa*; HORN, p. 371, Deutsche e. Z. 1892.  
*T. frontalis*, Philippines, HORN, p. 66, Deutsche e. Z. 1892, n. sp.

## CARABIDÆ.

- [Cf. ABEILLE (1), BATES (37, 38), BLACKBURN (90, 91, 93, 95), DUVIVIER (230), FAIRMAIRE (262, 267, 269, 270), FRIVALDSZKY (309), GANGLBAUER (317, 318), GESTRO (330, 332, 334), HORN (417, 418), PÉRINGUEY (672, 673), REITTER (724, 725, 728), ROST (780), SLOANE (852, 853), TRYON (953).]  
*Abacetus cyclodes*, India, BATES, p. 232, Ann. Ent. Belg. xxxvi; *A. insolatus*, *illuminans*, p. 359, *sulculatus*, *foveifrons*, p. 360, *antepunctatus*, p. 362, Burma, BATES, Ann. Mus. Genov. (2) xii : n. spp.  
*Acanthogenius infuscatus*, Burma, BATES, p. 389, Ann. Mus. Genov. (2) xii, n. sp.  
*Acinopus picipes*, metamorphoses; XAMBEU, p. 200, Le Nat. 1892.

- Acupalpus tessellatus, elegantulus*, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) p. 22; *A. sinuellus*, Bhamo, BATES, p. 350, Ann. Mus. Genov. (2) xii : n. spp.
- Agastillus*, n. subg. of *Pterostichus*; REITTER, p. 61, Wien. ent. Z. xi.
- Agonocheila fenestrata*, S. Australia, BLACKBURN, p. 80, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Allocota ærata*, Burma, BATES, p. 425, Ann. Mus. Genov. (2) xii, n. sp.
- Amara* : subgg. *Celia* and *Triæna*, study of N. American forms; HORN, pp. 18-40, Tr. Am. Ent. Soc. xix. *A. apricaria*, metamorphoses; XAMBEU, Mœurs, ii, p. 13.
- A. (Triæna) belfragei*, Texas, HORN, p. 19, Tr. Am. Ent. Soc. xix; *A. (Celia) femoralis*, p. 30, *robustula*, p. 32, *nupera*, p. 33, *imitatrix*, p. 34, N. America, HORN, t. c. : n. spp.
- Amblystomus rotundiceps, vittatus*, India, BATES, p. 231, Ann. Ent. Belg. xxxvi; *A. magnus*, p. 333, *punctatus, tetrastigma*, p. 335, Burma, BATES, Ann. Mus. Genov. (2) xii : n. spp.
- Amblytelus brevis, sinuatus*, Australia, BLACKBURN, p. 87, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Anatrichis birmanica*, Rangoon, BATES, p. 325, Ann. Mus. Genov. (2) xii, n. sp.
- Anisodactylus basicollis*, Seychelles, FAIRMAIRE, p. cli, Bull. Soc. Ent. Fr. lxi, n. sp.
- Anophthalmus apenninus*, fig. 3, *vacceæ*, fig. 4, *ramorinii*, fig. 5, pl. iv, figured; GESTRO, Ann. Mus. Genov. (2) xii.
- A. launi*, p. 80, pl. iv, fig. 1, *bensæ*, p. 81, fig. 2, Italy, GESTRO, t. c.; *A. antoninae*, Ordubad, REITTER, p. 60, Wien. ent. Z. xi : n. spp.
- Anoplogenus planicollis*, p. 345, *patinalis*, p. 346, *A. (Hemiaulææ) denti-pennis*, p. 347, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Anthia omoplata* and *limbipennis*, varr. of described; PÉRINGUEY, pp. 15 & 16, Tr. S. African Phil. Soc. vi (2).
- Antispodrus leptoderus*, Margelan, REITTER, p. 67, Wien. ent. Z. xi, n. sp.
- Apotomus* : characters of the palæarctic species; REITTER, p. 137, Wien. ent. Z. xi.
- A. latigena*, Turkestan (but on p. 188 corrected to Algeria), REITTER, l. c.; *A. hirsutulus*, Rangoon, BATES, p. 287, Ann. Mus. Genov. (2) xii : n. spp.
- Arenoxenus*, n. g., near *Loxandrus*, for *A. harpaloides*, n. sp., Burma; BATES, p. 365, Ann. Mus. Genov. (2) xii.
- Aristolebia*, n. g., near *Libia*, for *A. quadridentata*, n. sp., Burma; BATES, p. 428, Ann. Mus. Genov. (2) xii.
- Bembidium subviride*, Macl., = *ocellatum*, Blackb.; BLACKBURN, p. 98, P. Linn. Soc. N.S.W. (2) vii.
- B. (Pseudolimnæum) doderoi*, Val Pesio, GANGLBAUER, p. 314, Wien. ent. Z. xi; *B. (Peryphus) subcylindricum*, Taschkent, REITTER, p. 59, Wien. ent. Z. xi; *B. xanthotelum*, Rangoon, BATES, p. 287, Ann. Mus. Genov. (2) xii : n. spp.
- Blechrus discoidalis*, Obock, FAIRMAIRE, p. 83, Rev. d'Ent. xi, n. sp.

- Brachichila rugulipennis*, Burma, BATES, p. 406, Ann. Mus. Genov. (2) xii, n. sp.
- Brachinus nobilis*, Dej., = (*Pheropsophus alstoni*, Per.); PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2).
- B. concinnus*, *flavicapillus*, p. 393, *exquisitus*, p. 394, *evanescens*, *clarescens*, p. 395, *circuminctus*, *intactus*, p. 396, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Brachyonychus levipennis*, n. var. *parumpunctatus*; BATES, p. 298, Ann. Mus. Genov. (2) xii.
- Broschini*: notes, taxonomic, synonymic, and critical, on Australian genera and species; SLOANE, P. Linn. Soc. N.S.W. (2) vii, pp. 45-64.
- Calleida sultana*, p. 421, *excelsa*, *doriae*, p. 422, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Carabus cebennicus*, n. n. for *hispanus*, auct., nec Fab.; *C. hispanus*, var., = (*rutilans*, auct.); VUILLEFROY, p. 320, Ann. Soc. Ent. Fr. lxi.
- C. hispanus*, n. var. *boudeti*; BEUTHIN, p. 211, Ent. Nachr. xviii.
- Carenum*: synonymical notes on, and localities for, numerous species; SLOANE, P. Linn. Soc. N.S.W. (2) vi, pp. 429-432.
- C. ignotus*, p. 427, *habilis*, p. 428, W. Australia, SLOANE, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Casnonia albicolon*, *graciliceps*, 381, *xanthe*, p. 382, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Cataecopus mirabilis*, Burma, BATES, p. 409, Ann. Mus. Genov. (2) xii, n. sp.
- Chlænioctenus*, n. subg. of *Chlænius*, *q. v.*; BATES, Ann. Mus. Genov. (2) xii, p. 309.
- Chlænius vrecundus*, Natal, PÉRINGUEY, p. 103, Tr. S. African Phil. Soc. vi (2); *C. rudicollis*, Madagascar, FAIRMAIRE, p. clxix, Bull. Soc. Ent. Fr. lxi; *C. erikssoni*, p. 18, *ovampo*, *egregius*, p. 19, *fraternus*, p. 20, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2); *C. lateripictus*, p. 82, *cyaneo-rufus*, p. 83, Obock, FAIRMAIRE, Rev. d'Ent. xi; *C. (Homalolachnus) feanus*, p. 308, *C. (Chlænioctenus) pectinipes*, p. 309, Burma, *eneides*, Assam, p. 310, *C. bhamoensis*, p. 311, *annulipes*, p. 312, *privatus*, p. 315, *delicatus*, *ochroperas*, p. 316, *pæcilinus*, p. 317, *corrosulus*, p. 319, *cæruleiceps*, p. 320, Burma, BATES, Ann. Mus. Genov. (2) xii : n. spp.
- Clivina æqualis*, description amended; BLACKBURN, p. 83, P. Linn. Soc. N.S.W. (2) vii.
- C. sagittaria*, p. 275, *sectifrons*, p. 276, *laviceps*, p. 277, *debilis*, *pileolata*, *scissa*, p. 278, *scuticeps*, p. 280, *occipitalis*, *costulipennis*, p. 281, *chloricans*, p. 282, Burma, BATES, Ann. Mus. Genov. (2) xii; *C. helmsi*, Australia, BLACKBURN, p. 22, Tr. R. Soc. S. Austr. xvi : n. spp.
- Coleolissus*, n. subg. of *Hypolithus*, *q. v.*; BATES, p. 338, Ann. Mus. Genov. (2) xii.

- Colpodes muleyitus*, *calitis*, p. 372, *janellus*, p. 373, *acroglyptus*, *castani-ventris*, p. 374, *punctulicollis*, *undulipennis*, p. 375, *eucnemis*, *ischioxanthus*, p. 376, *spinulifer*, p. 377, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Coriza* ? *araticeps*, Obock, FAIRMAIRE, p. 84, Rev. d'Ent. xi, n. sp.
- Creagris binoculus*, Burma, *hamaticollis*, Borneo, BATES, p. 390, Ann. Mus. Genov. (2) xii, n. sp.
- Cyclothorax eyrensis*, S. Australia, BLACKBURN, p. 480, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Cymindoidea planulata*, Burma, BATES, p. 417, Ann. Mus. Genov. (2) xii, n. sp.
- Cypholoba amatonga*, S. Africa, PÉRINGUEY, p. 102, Tr. S. African Phil. Soc. v (2), n. sp.
- Demetrius tweedensis*, N. S. Wales, BLACKBURN, p. 67, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Dendrocellus gestroi*, Burma, BATES, p. 121, Ann. Mus. Genov. (2) xii, n. sp.
- Dicelus splendidus*, larva and pupa described, and figured ; WICKHAM, p. 195, Bull. Lab. Iowa, ii.
- Dischissus alaticollis*, Tenasserim, BATES, p. 302, Ann. Mus. Genov. (2) xii, n. sp.
- Dolichoctis rutilipennis*, p. 412, *angusticollis*, p. 413, *incerta*, *iridea*, p. 414, *expansicollis*, p. 415, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Dromius yarrae*, Victoria, BLACKBURN, p. 71, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Drypta siderea*, p. 382, *fimbriata*, p. 384, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Dyschirius aneobrachialis*, Burma, BATES, p. 283, Ann. Mus. Genov. (2) xii, n. sp.
- Dystrichothorax*, n. g., near *Amblytelus*, for *D. bicolor*, p. 88, *sloanei*, *bipunctatus*, p. 89, *lividus*, *vicinus*, p. 90, n. spp., Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.
- Ecnomolaus*, n. g., *Trigonotomini*, p. 357, for *E. clivinoides*, n. sp., Burma, p. 358, BATES, Ann. Mus. Genov. (2) xii.
- Ectroma beneficum*, variation and synonymy discussed ; BLACKBURN, p. 73, P. Linn. Soc. N.S.W. (2) vii.
- E. obsoletum*, N. S. Wales, *id. t. c.* p. 72, n. sp.
- Elaphrus dauricus* and *sibiricus*, distinctions noticed ; REITTER, p. 188, Wien. ent. Z. xi.
- Endynomena discoidalis*, Burma, BATES, p. 423, Ann. Mus. Genov. (2) xii, n. sp.
- Epelys*, n. g., near *Amblytelus*, for *E. lindensis*, *latus*, n. spp., Australia, BLACKBURN, p. 92, P. Linn. Soc. N.S.W. (2) vii.
- Epicosmus breviformis*, *mandarinellus*, p. 299, *latigenis*, p. 300, *brevisternis*, p. 301, *gracilipes*, p. 302, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.

- Eudromus opacus*, Diego-Suarez, FAIRMAIRE, p. cix, Bull. Soc. Ent. Fr. lxi, n. sp.
- Euryaptus*, n. g., near *Trigonotoma*, for *E. nigellus*, Burma, p. 355, *assamensis*, Assam, *rufipes*, Andaman Is., p. 356, n. spp.; BATES, Ann. Mus. Genov. (2) xii.
- Eurydera rotundata*, Madagascar, FAIRMAIRE, p. clxix, Bull. Soc. Ent. Fr. lxi, n. sp.
- Eurytychnus victorie*, Australia, SLOANE, p. 52, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Euryscaphus sulcicollis*, p. 81, *chaudoiri*, p. 82, Australia; BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Galerita birmanica*, p. 121, *fecæ*, p. 122, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Gigadema eremita*, p. 17, *mandibulare*, p. 18, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Gnathaphanus acutipennis*, p. 328, *exaratus*, *rufitactor*, p. 329, Burma, BATES, Ann. Mus. Genov. (2) xii; *G. aridus*, Australia, BLACKBURN, p. 22, Tr. R. Soc. S. Austr. xvi : n. spp.
- Graphipterus lugens*, Chaud., = (*unicittatus*, Per.) ; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi, 2.
- G. grandis*, p. 7, *ornatus*, p. 8, *vicinis*, *deceptor*, *ovipennis*, p. 9, *agilis*, p. 10, *simulator*, *amicus*, *latus*, p. 11, *erikssoni*, p. 12, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2; *G. mimus*, p. 98, *egregius*, *zambesianus*, p. 99, *fraternus*, p. 100, S. Africa, PÉRINGUEY, t. c. : n. spp.
- Haplogaster ampliatus*, Burma, BATES, p. 270, Ann. Mus. Genov. (2) xii, n. sp.
- Harpaliscus*, n. g., near *Harpalus*, p. 340, for *H. birmanicus*, n. sp., Burma, p. 341; BATES, Ann. Mus. Genov. (2) xii.
- Harpalus* ? *karennius*, Burma, BATES, p. 341, Ann. Mus. Genov. (2) xii, n. sp.
- Hemiaulax*, n. subg. of *Anoplogenius*, q. v.; BATES, Ann. Mus. Genov. (2) xii, p. 347.
- Hemichlænius*, n. g., near *Chlænius*, p. 307, for *H. microspilus*, n. sp., Burma, p. 308, BATES, Ann. Mus. Genov. (2) xii, n. sp.
- Homethes angulatus*, p. 68, *gracilis*, *parvicollis*, p. 69, *rotundatus*, p. 70, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Hoplolenus atronitens*, Madagascar, FAIRMAIRE, p. clxx, Bull. Soc. Ent. Fr. lxi, n. sp.
- Hydroporomorpha obockiana*, Africa, FAIRMAIRE, p. 86, Rev. d'Ent. xi, n. sp.
- Hypharpax australis* and *inornatus* distinguished; BLACKBURN, p. 83, P. Linn. Soc. N.S.W. (2) vii.
- H. obsoletus*, W. Australia, *id. t. c.* p. 84, n. sp.
- Hypolithus ornatus*, S. W. Africa, PÉRINGUEY, p. 21, Tr. S. African Phil. Soc. vi, 2; *H. subtilis*, *H. (Coleolissus)*, *lamprotus*, p. 338, *bicoloripes*, p. 339, *viridellus*, *eulamprus*, p. 340, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.

- Hystrichopus agilis*, *altecostatus*, p. 97, *porrectus*, p. 98, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, n. spp.
- Lachnoderma?* *biguttatum*, Burma, BATES, p. 424, Ann. Mus. Genov. (2) xii, n. sp.
- Lebia fulvipes*, France, JACQUET, p. 2, Échange, 1887, No. 35, and distinctive characters, PIC, Échange, 1891, p. 136; *L. chrysis*, Taschkent, REITTER, p. 27, Wien. ent. Z. xi; *L. mashuana*, Mashuanaland, PÉRINGUEY, p. 96, Tr. S. African Phil. Soc. vi, 2; *L. cardoni*, Bengal, BATES, p. 233, Ann. Ent. Belg. xxxvi; *L. karenia*, p. 426, *maharani*, p. 427, Burma, BATES, Ann. Mus. Genov. (2) xii: n. spp.
- Lecamomerus major*, *striatus*, N. S. Wales, BLACKBURN, p. 479, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Leptorembus kolbei*, Congo, DUVIVIER, p. 56, Ann. Ent. Belg. xxxvi, n. sp.
- Loxandrus*, characters and components noticed; BLACKBURN, p. 95, P. Linn. Soc. N.S.W. (2) vii.
- L. levicollis*, p. 96, *micans*, p. 97, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Lychnus ater*, Putz., = (*strangulatus*, Bates); SLOANE, p. 57, P. Linn. Soc. N.S.W. (2) vii.
- Lymnastis pilosus*, p. 296, *atricapillus*, p. 297, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Macrochilus ferruginaipes*, Madagascar, FAIRMAIRE, p. clxviii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Masoreus* (*Ephnidius*) *submaculatus*, Burma, BATES, p. 405, Ann. Mus. Genov. (2) xii, n. sp.
- Mastax rugiceps*, p. 397, *alveolatus*, *carissimus*, p. 398, *gestroi*, p. 399, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Mecodema blagravii*, characters of, and description; SLOANE, p. 51, P. Linn. Soc. N.S.W. (2) vii.
- Megalonychus birmanicus*, *dilatocollis*, Burma, p. 369, *cyanipennis*, Assam, p. 370, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Metabacetus*, n. g., near *Pedimorphus*, for *M. immarginatus*, n. sp., Burma, BATES, p. 364, Ann. Mus. Genov. (2) xii.
- Metabletus subvittatus*, p. 417, *cymindulus*, p. 418, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Microferonia adelaidæ*, referred to *Anchomenini*; BLACKBURN, p. 95, P. Linn. Soc. N.S.W. (2) vii.
- Monacanthonyx*, n. g., near *Calathus*, for *M. pocillator*, n. sp., Burma; BATES, p. 367, Ann. Mus. Genov. (2) xii.
- Mormolyce*: parasitic fungus on; GIARD (338), and Bull. Soc. Ent. Fr. lxi, p. lx.
- Nanochlenius*, n. g., *Chlœniinae*, p. 321, for *N. fœæ*, n. sp., Burma, p. 322; BATES, Ann. Mus. Genov. (2) xii.
- Nebria araschinica*, Ordubad, REITTER, p. 66, Wien. ent. Z. xi, n. sp.
- Nematopeza auberti*, Obock, FAIRMAIRE, p. 84, Rev. d'Ent. x, n. sp.

- Notiophilus melanophthalmus*, Schlosser, characters of ; HEYDEN, p. 97, Wien. ent. Z. xi.
- Omophron* : list of the described species ; GESTRO, pp. 933 & 964, Ann. Mus. Genov. (2) x.
- O. oberthurii*, Burma, GESTRO, p. 962, *t. c.*, n. sp.
- Onycholabis melitopus*, Burma, BATES, p. 371, Ann. Mus. Genov. (2) xii, n. sp.
- Oodes conspicuus*, Transvaal, PÉRINGUEY, p. 20, Tr. S. African Phil. Soc. vi (2) ; *O. cribristernis*, *peguensis*, p. 323, *rhodopus*, p. 324, Burma, BATES, Ann. Mus. Genov. (2) xii : n. spp.
- Ophionca bhamoensis*, Burma, BATES, p. 380, Ann. Mus. Genov. (2) xii, n. sp.
- Ophoniscus*, n. g., near *Ophonus*, for *O. iridulus*, p. 337, *cribrifrons*, *hypolithoides*, p. 338, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Orthogonius quadricollis*, p. 400, *dispar*, p. 401, *rufiventris*, p. 402, *apiculatus*, p. 403, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Orthotrichus alternatus*, *indicus*, Burma, BATES, p. 368, Ann. Mus. Genov. (2) xii, n. spp.
- Oxycentrus acutulus*, *omaseoides*, Burma, BATES, p. 344, Ann. Mus. Genov. (2) xii, n. spp.
- Oxydrepanus birmanicus*, Tenasserim, BATES, p. 283, Ann. Mus. Genov. (2) xii, n. sp.
- Pentagonica daimiella*, Japan, BATES, p. 426, Ann. Mus. Genov. (2) xii, n. sp.
- Percolestus*, n. g., *Broscini*, p. 54, for *P. blackburni*, n. sp., Victoria, p. 55, SLOANE, P. Linn. Soc. N.S.W. (2) vii.
- Percosoma* : the species tabulated ; SLOANE, p. 58, P. Linn. Soc. N.S.W. (2) vii.
- P. concolor*, Victoria, SLOANE, *t. c.* p. 61, n. sp.
- Perigona nigriceps* and *pallipennis*, distinctive characters ; HORN, p. 44, Tr. Am. Ent. Soc. xix.
- P. bigener*, Burma, BATES, p. 379, Ann. Mus. Genov. (2) xii, n. sp.
- Perileptus melanopygus*, Obock, FAIRMAIRE, p. 87, Rev. d'Ent. xi, n. sp.
- Pheropsophus acutecostatus*, Madagascar, FAIRMAIRE, p. clxviii, Bull. Soc. Ent. Fr. lxi ; *P. nanodes*, Assam, p. 391, *infantulus*, Burma, p. 390, BATES, Ann. Mus. Genov. (2) xii : n. spp.
- Philophræus pygmaeus*, *ornatus*, Australia, BLACKBURN, p. 19, Tr. R. Soc. S. Austr. xvi ; *P. monticola*, p. 75, *sydneyensis*, p. 76, *laticollis*, p. 77, *confertus*, p. 78, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Piezia albolineata*, Wallengr. = (*albosignata*, Pér.) ; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2).
- P. ovampoensis*, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 13, n. sp.
- Pirantillus extensicollis*, Burma, BATES, p. 370, Ann. Mus. Genov. (2) xii, n. sp.

- Platymetopus longulus*, p. 330, *P. ? erebius*, *edentatus*, *sublævis*, p. 331, *grandiceps*, p. 332, *amariformis*, p. 333, Burma, *gnathaphanoides*, Assam, p. 332, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Platynus reflexus*, variation ; HAMILTON, p. 157, Canad. Ent. xxiv.
- P. myrmecodes*, *arizonensis*, *languidus*, Arizona, HORN, p. 42, Tr. Am. Ent. Soc. xix, n. spp.
- Plectes platessa*, Motsch., noticed, *biebersteini*, n. var. *adelphus* ; ROST, Deutsche e. Z. 1892, p. 142.
- P. polychrous*, Caucasus, ROST, p. 401, Deutsche e. Z. 1892, n. sp.
- Plochionus timidus*, habits ; MURTFELDT, Canad. Ent. xxiv, p. 279.
- Pæcilus ornatus*, New Guinea, TRYON (953), n. sp.
- Pogonoglossus carinipennis*, Burma, BATES, p. 388, Ann. Mus. Genov. (2) xii, n. sp.
- Polyhirma somalica*, Somaliland, GESTRO, p. 751, Ann. Mus. Genov. (2) xii ; *P. edax*, p. 13, *alstoni*, p. 14, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) ; *P. chaudioui*, p. 100, *rutata*, p. 101, S. Africa, PÉRINGUEY, t. c. : n. spp.
- Pristomachærus quadristigma*, p. 303, *rubellus*, *eucharis*, p. 305, *lebioides*, *cauliops*, p. 306, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Promecoderus castelnaui*, p. 46, *ambiguus*, p. 49, Australia, SLOANE, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Pseudotaphoxenus gracilicornis*, China, FRIVALDSZKY, p. 122, Term. füzetek, xv, n. sp.
- Pterostichus amethystinus*, *brunneus*, *castaneus*, ♂ characters ; *brunneus* = (*scutellaris*, Lec.), *maneus* and *diligendus*, synonymy ; *mutus*, Say, = (*pulvinatus* and *stenops*, Haus.) ; HORN, p. 41, Tr. Am. Ent. Soc. xix.
- P. (Agastillus)*, n. subg.) *cucujinus*, Ordubad, REITTER, p. 61, Wien. ent. Z. xi, n. sp.
- Rhembus rectificatus*, p. 325, *levigatus*, *colossus*, p. 326, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Rhytisternus splendens*, p. 93, *cardwellensis*, p. 94, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Sarothrocrepis posticalis* and *calida*, distinction from *corticalis* queried ; BLACKBURN, p. 71, P. Linn. Soc. N.S.W. (2) vii.
- Sarticus obscurus*, *brevicornis*, Australia, BLACKBURN, p. 23, Tr. R. Soc. S. Austr. xvi, n. spp.
- Scotodipnus mayeti*, Alpes Maritimes, ABEILLE, p. 62, Rev. d'Ent. xi, n. sp.
- Siagona simplex*, p. 6, *australis*, p. 7, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) ; *S. subtilis*, *angulifrons*, p. 284, *angustipennis*, p. 286, Burma, BATES, Ann. Mus. Genov. (2) xii : n. spp.
- Simous lampros*, Burma, BATES, p. 322, Ann. Mus. Genov. (2) xii, n. sp.
- Simurus nitidus*, p. 407, *graciliceps*, p. 408, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Stenolophus harpaloides*, p. 347, *rectifrons*, p. 348, *charis*, p. 349, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Stereostoma meridionalis*, Transvaal, PÉRINGUEY, p. 103, Tr. S. African Phil. Soc. vi (2), n. sp.

- Stomonaxus dilaticollis*, p. 351, *inermis*, p. 352, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Tachys vittatus*, Motsch., redescribed; REITTER, p. 67, Wien. ent. Z. xi.
- T. sellatus*, Obock, FAIRMAIRE, p. 87, Rev. d'Ent. xi; *T. prolixus*, *photinus*, p. 288, *euryodes*, *obsolescens*, *haliploides*, p. 289, *remotiporis*, p. 290, *transumbratus*, *T. (Barytachys) callispilotus*, p. 291, *feanus*, *ocellatus*, p. 292, *expansicollis*, p. 293, *mirabilis*, p. 294, *nietneri* = (*ornatum*, Niet.), p. 295, *unitarius*, p. 296, Burma, BATES, Ann. Mus. Genov. (2) xii; *T. yarrensis*, Victoria, BLACKBURN, p. 20, Tr. R. Soc. S. Austr. xv : n. spp.
- Teniolobus birmanicus*, Teinzo, BATES, p. 270, Ann. Mus. Genov. (2) xii, n. sp.
- Taridius birmanicus*, Burma, BATES, p. 416, Ann. Mus. Genov. (2) xii, n. sp.
- Tetragonoderus dispar*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 6, n. sp.
- Trechus (Anophthalmus) speiseri*, Herzegovina, GANGLBAUER, p. 233, Wien. ent. Z. xi; *T. angelica*, Ordubad, REITTER, p. 60, Wien. ent. Z. xi; *T. birmanicus*, p. 297, *cauliops*, p. 298, Burma, BATES, Ann. Mus. Genov. (2) xii; *T. barbaræ*, California, HORN, p. 41, Tr. Am. Ent. Soc. xix : n. spp.
- Trienogenius obockianus*, Africa, FAIRMAIRE, p. 85, Rev. d'Ent. xi, n. sp.
- Trichocarenum*, n. g., near *Eutoma*, p. 20, for *T. elderi*, n. sp., Victoria Desert, p. 21; BLACKBURN, Tr. R. Soc. S. Austr. xvi.
- Trichotichnus birmanicus*, Burma, BATES, p. 342, Ann. Mus. Genov. (2) xii, n. sp.
- Trigonognatha feana*, Burma, BATES, p. 365, Ann. Mus. Genov. (2) xii, n. sp.
- Trigonothops longiplaga*, *pacifica*, are probably one species; BLACKBURN, p. 65, P. Linn. Soc. N.S.W. (2) vii.
- Trigonotoma lamprodera*, *igneicollis*, p. 353, *bhamoensis*, *chrysites*, p. 354, Burma, *iodes*, Assam, p. 353, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Triplogenius feanus*, p. 356, *peguensis*, p. 357, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.
- Zeloticus*, n. g., near *Chlanius*, for *Z. tristis*, n. sp., S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, p. 17, n. sp.
- Zuphium formosum*, p. 386, *præstans*, p. 387, Burma, BATES, Ann. Mus. Genov. (2) xii, n. spp.

#### AMPHIZOIDÆ, HALIPLIDÆ, DYTISCIDÆ.

[Cf. HUBBARD (437, 438), RÉGIMBART (720, 721, 722, 723).]

*Amphizoa lecontei*, imago figured, larva fig., and description; HUBBARD, *Ins. Life*, v, pp. 19–22 : larva described and figured; HUBBARD, P. E. Soc. Wash. ii, pp. 341–346, pl. iii.

- Haliphus angustifrons*, Bengal, RÉGIMBART, p. 112, Ann. Ent. Belg. xxxvi; *H. signatipennis*, *ferruginipes*, New Guinea, RÉGIMBART, p. 979, Ann. Mus. Genov. (2) x : n. spp.
- Bidessus guttulatus*, Burma, RÉGIMBART, p. 542, Ann. Mus. Genov. (2) x; *B. loriae*, p. 989, *neoguineensis*, p. 990, New Guinea, RÉGIMBART, Ann. Mus. Genov. (2) x; *B. severini*, p. 116, *indicus*, p. 117, *consanguineus*, *antematus*, p. 118, *inconstans*, p. 119, *livens*, p. 120, Bengal, RÉGIMBART, Ann. Ent. Belg. xxxvi : n. spp.
- Copelatus speciosus*, n. n. for *formosus*, Rég.; RÉGIMBART, p. 991, Ann. Mus. Genov. (2) x.
- C. gestroi*, New Guinea, RÉGIMBART, p. 991, Ann. Mus. Genov. (2) x, n. sp.
- Cybister ovas*, n. var. *congoana*, DUVIVIER, p. 272, Ann. Ent. Belg. xxxvi.
- C. hypomelas*, New Guinea, RÉGIMBART, p. 994, Ann. Mus. Genov. (2), x, n. sp.
- Dytiscus marginalis*, variation in coxal processes; GRIFFINI, Boll. Mus. Tor. vii, No. 115.
- Hydaticus epipleuricus*, Burma, RÉGIMBART, p. 545, Ann. Mus. Genov. (2) x; *H. suffusus*, p. 992, *rhantaticoides*, p. 993, New Guinea, RÉGIMBART, Ann. Mus. Genov. (2) x : n. spp.
- Hydrocoptus opatrinus*, p. 11, *bosschæ*, p. 12, Borneo, RÉGIMBART, Notes Leyd. Mus. xiv, n. spp.
- Hydrovatus pinguis*, Bengal, RÉGIMBART, p. 114, Ann. Ent. Belg. xxxvi, n. sp.
- Hyphoporus severini*, Bengal, RÉGIMBART, p. 115, Ann. Ent. Belg. xxxvi, n. sp.
- Hyphydrus lyratus*, n. var. *foveolatus*; RÉGIMBART, p. 986, Ann. Mus. Genov. (2) x.
- H. flavicans*, Bengal, RÉGIMBART, Ann. Ent. Belg. xxxvi, p. 115; *H. loriae*, p. 985, *gibbicollis*, p. 986, *curvipes*, p. 987, New Guinea, RÉGIMBART, Ann. Mus. Genov. (2) x : n. spp.
- Lacconectes lividus*, Burma, RÉGIMBART, p. 544, Ann. Mus. Genov. (2) x, n. sp.
- Laccophilus parvulus*, variation noticed; RÉGIMBART, p. 113, Ann. Ent. Belg. xxxvi.
- L. birmanicus*, p. 538, *planitarsis*, p. 539, Burma, RÉGIMBART, Ann. Mus. Genov. (2) x; *L. univittatus*, *auriculatus*, New Guinea, RÉGIMBART, p. 981, t. c. : n. spp.
- Macroporus piceatus*, New Guinea, RÉGIMBART, p. 984, Ann. Mus. Genov. (2) x, n. sp.
- Neptosternus speciosus*, p. 982, *bicinctus*, p. 983, New Guinea, RÉGIMBART, Ann. Mus. Genov. (2) x, n. spp.

#### GYRINIDÆ.

[Cf. RÉGIMBART (720, 721).]

- Dineutes neoguineensis*, New Guinea, RÉGIMBART, p. 996, Ann. Mus. Genov. (2) x, n. sp.

- Gyrinus smaragdinus*, Burma, RÉGIMBART, p. 547, Ann. Mus. Genov. (2) x, n. sp.  
*Orectochilus apicalis*, p. 548, *birmanicus*, p. 550, *cribratellus*, p. 551, *villosovittatus*, p. 552, *tomentosus*, p. 553, Burma, RÉGIMBART, t. c., n. spp.  
*Porrhorrhynchus depressus*, New Guinea, RÉGIMBART, p. 996, t. c., n. sp.

## HYDROPHILIDÆ.

- [*Cf.* BEDEL (47), FAIRMAIRE (262, 263), GUILLEBEAU (374, 378), KUWERT (402), PÉRINGUEY (672, 673).]  
*Berosus majusculus* and *externespinosus*, characters of; BLACKBURN, p. 207, Tr. R. Soc. S. Austr. xv.  
*B. fuscotriatus*, p. 87, *immaculicollis*, p. 88, Obock, FAIRMAIRE, Rev. d'Ent. xi, n. spp.  
*Dibolocelus*, n. subg. of *Stethoxus*; BEDEL, p. 308, Rev. d'Ent. x.  
*Eccoptometopus*, n. g., near *Ochthebius*, p. 104, for *E. sculpticollis*, *nitens*, p. 105, *proximus*, p. 106, n. spp., S. Africa; PÉRINGUEY, Tr. S. African Phil. Soc. vi (2).  
*Helophorus punctato-sulcatus*, Turkestan, KUWERT, p. 102, Deutsche e. Z. 1892, n. sp.  
*Hydræna capicola*, p. 106, *extrema*, p. 107, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. spp.  
*Hydrobaticus luridus* and *tristis* are one species; BLACKBURN, p. 99, P. Linn. Soc. N.S.W. (2) vii.  
*Hydrochus capensis*, Cape Colony, PÉRINGUEY, p. 104, Tr. S. African Phil. Soc. vi (2), n. sp.  
*Hydrophilus*, revision of (under the name *Stethoxus*); BEDEL, Rev. d'Ent. x, pp. 306-322 : *H. gansuensis*, characters of; SEMENOW, p. 163, Wien. ent. Z. xi.  
*Hydrous dichromus*, Syria, FAIRMAIRE, p. 144, Ann. Ent. Belg. xxxvi, n. sp.  
*Limnobius theryi*, Algeria, GUILLEBEAU, p. 324, Rev. d'Ent. x; *L. (Tricholimnobius) grouvellei*, Spain, GUILLEBEAU, p. cxxxiii, Bull. Soc. Ent. Fr. lxi : n. spp.  
*Ochthebius turkestanicus*, Alai Mts., KUWERT, p. 102, Deutsche e. Z. 1892, n. sp.  
*Philydrus suturalis*, note on; SHARP, Ent. M. M. xxviii, p. 111. *P. maculiceps*, *lavigatus*, distinctive characters; BLACKBURN, p. 207, Tr. R. Soc. S. Austr. xv.  
*Spercheus interruptus*, Obock, FAIRMAIRE, p. 88, Rev. d'Ent. xi; *S. australis*, S. Africa, PÉRINGUEY, p. 23, Tr. S. African Phil. Soc. vi (2); *S. capicola*, p. 107, *algoensis*, p. 108, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) : n. spp.  
*Stethoxus, rufo-cinctus*, Hindostan, p. 309, *cavisternum*, Tonkin, p. 310, *indicus*, Hindostan, p. 310, *pedipalpus*, Australia, p. 312, *simulator*, Guyana, p. 313, BEDEL, Rev. d'Ent. x, n. spp.

## STAPHYLINIDÆ.

[Cf. BLACKBURN (93), DOHRN (221), EPPELSHEIM (255, 256), FAIRMAIRE (262), GESTRO (334), GANGLBAUER (319), REITTER (725), SHARP (844), WASMANN (987).]

*Achenium hauseri*, Djizak, EPPELSHEIM, p. 336, Deutsche e. Z. 1892, n. sp.

*Amphicroum adelaidæ*, S. Australia, BLACKBURN, p. 23, Tr. R. Soc. S. Austr. xv, n. sp.

*Anthobium sareptanum*, Epp., = (*starchi*, Reit.); REITTER, p. 26, Wien. ent. Z. xi.

*Atemeles pubicollis*, n. var. *foreli*; WASMANN, p. 351, Deutsche e. Z. 1892.

*Atheta (Hydrosmecta) tenuissima*, Europe, EPPELSHEIM, p. 292, Wien. ent. Z. xi; *A. (Homalota) flavida*, p. 322, *A. (Metaxya) blanda*, p. 323, *concolor*, p. 324, *A. (Microdota) turanica*, p. 325, Turkestan, EPPELSHEIM, Deutsche e. Z. 1892 : n. spp.

*Belonuchus nullicedo*, Philippines, DOHRN, p. 74, S. E. Z. liii, n. sp.

*Bledius simulator*, p. 344, *immaturus*, p. 345, Turkestan, EPPELSHEIM, Deutsche e. Z. 1892; *B. lividipes*, Obock, FAIRMAIRE, p. 90, Rev. d'Ent. xi : n. spp.

*Boreaphilus carinthiacus*, Europe, GANGLBAUER, p. 17, Soc. Ent. vii, n. sp.

*Conurus pubescens*, n. var. *decurtatus*; EPPELSHEIM, p. 328, Deutsche e. Z. 1892.

*Coproporus lateimpressus*, Margelan, EPPELSHEIM, p. 327, Deutsche e. Z. 1892, n. sp.

*Dilacra fleischeri*, Austria, EPPELSHEIM, p. 293, Wien. ent. Z. xi, n. sp.

*Eleusis parva*, N. S. Wales, BLACKBURN, p. 24, Tr. R. Soc. S. Austr. xv, n. sp.

*Euryusa laticollis*, habits; WASMANN, p. 350, Deutsche e. Z. 1892.

*Fulagria subænea*, Taschkent, EPPELSHEIM, p. 326, Deutsche e. Z. 1892, n. sp.

*Geodromicus*, distinctions of the sexes; EPPELSHEIM, p. 49, Soc. Ent. vii.

*Geostiba apfelbecki*, Bosnia, EPPELSHEIM, p. 289, Wien. ent. Z. xi, n. sp.

*Hyperomma abnorme*, Victoria, BLACKBURN, p. 22, Tr. R. Soc. S. Austr. xv, n. sp.

*Lathrobium (Lobathrium) cognatum*, Turcomania, EPPELSHEIM, p. 355, Deutsche e. Z. 1892, n. sp.

*Leptusa (Sipalia) bosnica*, Bosnia, EPPELSHEIM, p. 295, Wien. ent. Z. xi, n. sp.

*Liogluta monticagens*, Carpathians, EPPELSHEIM, p. 291, Wien. ent. Z. xi, n. sp.

*Liparocephalus*, referred to *Aleocharini*; CASEY, p. 711, Ann. N. York Ac. vi. *L. brevipennis* and *cordicollis*, probably one species; HAMILTON, p. 157, Canad. Ent. xxiv.

*Lomechusa strumosa*, its relations with various kinds of ants discussed; WASMANN, Biol. Centralbl. xii, pp. 584, &c.

*Medon propinquus*, n. var. *nigrinus*; EPPELSHEIM, p. 337, Deutsche e. Z. 1892.

- Microglossa lederi*, Taschkent, EPPELSHEIM, p. 321, Deutsche e. Z. 1892, n. sp.
- Mycetoporus reitteri*, Tatra Mts., EPPELSHEIM, p. 296, Wien. ent. Z. xi ;  
*M. rubricus*, Turkestan, EPPELSHEIM, p. 329, Deutsche e. Z. 1892 :  
 n. spp.
- Myrmedonia afra*, Somaliland, GESTRO, p. 753, Ann. Mus. Genov. (2) xii,  
 n. sp.
- Myrmæcia fussi*, habits ; WASMANN, Deutsche e. Z. 1892, p. 348.
- Niphetodes apfelbecki*, Carpathians, GANGLBAUER, p. 17, Soc. Ent. vii,  
 n. sp.
- Oxytelus sexualis*, p. 342, *subtilis*, p. 343, Taschkent, EPPELSHEIM, Deutsche  
 e. Z. 1892, n. sp.
- Pæderus debilior*, Turkestan, EPPELSHEIM, p. 339, Deutsche e. Z. 1892,  
 n. sp.
- Philonthus variabilis*, Taschkent, EPPELSHEIM, p. 333, Deutsche e. Z. 1892 ;  
*P. flavicornis*, Obock, FAIRMAIRE, p. 89, Rev. d'Ent. xi : n. spp.
- Philorinum hopffgarteni*, Siebenburgen, EPPELSHEIM, p. 297, Wien. ent.  
 Z. xi, n. sp.
- Platysthetus depravatus*, Taschkent, EPPELSHEIM, p. 341, Deutsche e. Z.  
 1892, n. sp.
- Protinus limbatus*, metamorphoses ; XAMBEU, Mœurs, ii, p. 7.
- Quedius crassus*, p. 4, *cinctus*, p. 6, metamorphoses ; XAMBEU, Mœurs, ii.
- Q. capitalis*, p. 329, *novus*, p. 331, Turkestan, EPPELSHEIM, Deutsche e. Z.  
 1892 ; *Q. pictipennis*, Victoria, BLACKBURN, p. 21, Tr. R. Soc. S.  
 Austr. xv : n. spp.
- Scimbalium grandiceps*, Margelan, REITTER, p. 68, Wien. ent. Z. xi,  
 n. sp.
- Scopæus similis*, Taschkent, EPPELSHEIM, p. 337, Deutsche e. Z. 1892 ;  
*S. aliceps*, Obock, FAIRMAIRE, p. 89, Rev. d'Ent. xi ; *S. femoralis*,  
 N. S. Wales, BLACKBURN, p. 22, Tr. R. Soc. S. Austr. xv : n. spp.
- Stenus rugifer*, Cas., = (*anastomozans*), *vexatus* = (*insularis*), *placidus* =  
 (*tumicollis*), *villosus* = (*jejunus*), *milleporus* = (*sectilifer*), *difficilis* =  
 (*tenuis*), *nanus* = (*nanulus*), *humilis*, Er., = (*mammops*), *rigidus* =  
 (*ageus*), *brumalis* = (*pauperculus*), *gratiosus* = (*hirsutus*), *morio*,  
 Grav., = (*haplus* and *indistinctus*, Cas.), *umbratilis* = (*fraternus*),  
*pollens* = (*patens*), *reconditus* = (*propinquus*), *callosus* = (*varipes*),  
*punctatus* = (*dilutus* and *obsoletus*), *hubbardi* = (*simiolus*), *lucidus*  
 = (*leviceps*, *politulus*) ; CASEY, Ann. N. York Ac. vi, p. 711.
- S. posticalis*, Taschkent, EPPELSHEIM, Deutsche e. Z. 1892, p. 340,  
 n. sp.
- Tachinus laticollis*, larva described ; REY, p. clxxxii, Bull. Soc. Ent. Fr.  
 lxi.
- Tachyporus nitidulus*, n. var. *crux* ; EPPELSHEIM, p. 328, Deutsche e. Z.  
 1892.
- Trygæus javanicus*, Java, SHARP, p. 61, Notes Leyd. Mus. xiv, n. sp.
- Xantholinus ochripennis*, Turkestan, EPPELSHEIM, p. 334, Deutsche e. Z.  
 1892, n. sp.

PSSELAPHIDÆ.

[Cf. BRENDAL (120, 121), DODERO (219), GRILAT (365), GUILLEBEAU (376, 379), PIC (687), RAFFRAY (710), SHARP (843), XAMBEU (1021).]

Dimorphic males noticed; REITTER, p. 26, Wien. ent. Z. xi.

*Batrissus adnexus*, *oculatus*, habits; WASMANN, Deutsche e. Z. 1892, p. 350.

*Bibloporus pini*, p. clxxxiii, *ultimus*, p. clxxxiv, Corsica, GUILLEBEAU, Bull. Soc. Ent. Fr. lxi, n. spp.

*Bythinus carinula*, Lyons, REY, Échange, No. 42, 1888, p. 4, n. sp. (other doubtful n. spp. or varr. mentioned with names, l. c.); *B. ravouxi*, France, GRILAT, Échange, No. 58, 1889, p. 78 (but cf. t. c. p. 84); *B. croissandeaui*, Algeria, PIC, p. eclxxii, Bull. Soc. Ent. Fr. lxi: n. spp.

*Chennium bituberculatum*, larva described; XAMBEU, p. 135, Ann. Soc. L. Lyon, xxxix.

*Eudranes*, n. g. (*Tyrini*), p. 241, for *E. carinatus*, n. sp., N. W. Australia, p. 242; SHARP, Ent. M. M. xxviii.

*Eulasinus*, n. g. (*Tyrini*), for *E. walkeri*, n. sp., Chusan; SHARP, p. 240, Ent. M. M. xxviii.

*Rhexidius trogasteroides*, p. 12, *intermedius*, p. 13, N. America, BRENDAL, Ent. News, iii, n. spp.

*Trimium durum*, *costale*, p. 166, *gracile*, *laticolle*, *majus*, p. 167, N. America, BRENDAL, Tr. Am. Ent. Soc. xix, n. spp.

*Trogaster doriæ*, Busalla, DODERO, p. 666, Ann. Mus. Genov. (2) x, n. sp.

*Tychus striola*, France, GUILLEBEAU, p. 1, Supp. to Échange, No. 19, 1886.

SCYDMÆNIDÆ.

*Cephennium majus*, Reitt., and *laticolle*, Aubé, distinctive characters of; REITTER, p. 137, Wien. ent. Z. xi.

*Neuraphes panormitanus*, Sicily, RAGUSA, p. 80, Nat. Sicil. xi, n. sp.

PAUSSIDÆ.

[Cf. BLACKBURN (93), GESTRO (333), KRAATZ (513, 517), PÉRINGUEY (673), RAFFRAY (709), WASMANN (985), XAMBEU (1021).]

*Arthropterus foveipennis*, S. Australia, p. 24, *occidentalis*, W. Australia, p. 25, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.

*Pentaplatarthrus paussoides*, anatomy, structure of detonating organs; RAFFRAY, N. Arch. Mus. (3) iv, pp. 91-100, pl. xiii.

*Paussus favieri*, larva described; XAMBEU, p. 137, Ann. Soc. L. Lyon, xxxix.

*P. cervinus*, Madagascar, KRAATZ, Deutsche e. Z. 1892, p. 8; *P. opacus*, Madagascar, KRAATZ, t. c. p. 377; *P. spinicola*, Somaliland, WASMANN, p. 355, MT. Schw. ent. Ges. viii; *P. fallax*, Transvaal, PÉRINGUEY, p. 108, Tr. S. African Phil. Soc. vi, 2: n. spp.

*Protopaussus*, n. g., p. 706, for *P. feæ*, n. sp., Burma, p. 707; GESTRO, Ann. Mus. Genov. (2) xii.

## SILPHIDÆ.

[*Cf.* BLACKBURN (93), FAIRMAIRE (263), GUILLEBEAU (375, 377), HORN (418), PÉRINGUEY (673), XAMBEU (1021).]

*Pinodytini* and *Lyrosomini*, distinctive characters ; HORN, p. 44, Tr. Am. Ent. Soc. xix.

*Anemadus strigosus*, habits ; WASMANN, Deutsche e. Z. 1892, p. 350.

*Calyptomerus capensis*, S. Africa, PÉRINGUEY, p. 109, Tr. S. African Phil. Soc. vi, 2, n. sp.

*Catops fuscipes*, Men., characters noticed ; REITTER, p. 240, Wien. ent. Z. xi.

*C. hervei*, France, GUILLEBEAU, p. 116, Échange, 1891, n. sp.

*Catopsimorphus pilosus*, larva ; XAMBEU, p. 151, Ann. Soc. L. Lyon, xxxix.

*Choleva major*, Syria, FAIRMAIRE, p. 144, Ann. Ent. Belg. xxxvi, n. sp.

*Colon melbournense*, Victoria, BLACKBURN, p. 25, Tr. R. Soc. S. Austr. xv, n. sp.

*Hydnobius fulvescens*, Marseilles, GUILLEBEAU, Échange, i, No. 6, p. 2, n. sp.

*Necrophorus fossor*, p. 147, *humator*, p. 150, metamorphoses ; XAMBEU, Ann. Soc. L. Lyon, xxxix.

*Pinodytes hamiltoni*, *pusio*, N. America, HORN, p. 45, Tr. Am. Ent. Soc. xix, n. spp.

*Ptomaphagus nigriclavus*, France, GUILLEBEAU, p. 116, Échange, 1891 (but 1892, p. 4, this is said to be *sericeus*, Panz.), n. sp.

*Silpha sinuata*, p. 139, *carinata*, p. 142, metamorphoses ; XAMBEU, Ann. Soc. L. Lyon, 1892.

## TRICHOPTERYGIDÆ.

Critical notice of Flach's synopsis and synonymy of European *Trichopterygide* ; MATTHEWS, Ann. N. H. (6) ix, pp. 442-448.

*Bœocera palumboi*, Sicily, RAGUSA, p. 255, Nat. Sicil. xi, n. sp.

## HISTERIDÆ.

[*Cf.* BLACKBURN (93), BLAISDELL (96), HORN (418), LEWIS (553, 554, 555, 557, 558, 559, 560, 561), SCHMIDT (801, 802), WICKHAM (1009)]

*Abreus mikado*, Japan, LEWIS, p. 356, Ann. N. H. (6) ix ; *A. stigmaticus*, Perak, SCHMIDT, p. 29, Ent. Nachr. xviii : n. spp.

*Acritus shogunus*, Japan, *tasmanica*, Tasmania, LEWIS, p. 357, Ann. N. H. (6) ix, n. spp.

*Apobletes foliaceus* and *migneauxi*, synonymical note ; SCHMIDT, p. 290, Ann. Soc. Ent. Fr. lxi.

*A. nigrutilus*, Madagascar, LEWIS, Ann. N. H. (6) ix, p. 342 ; *A. anceps*, Perak, SCHMIDT, p. 19, Ent. Nachr. xviii ; *A. nirvana*, Burma, LEWIS, p. 20, Ann. Mus. Genov. (2) xii : n. spp.

*Carcinops karenensis*, Burma, LEWIS, p. 31, Ann. Mus. Genov. (2) xii ; *C. suavis*, Sumatra, SCHMIDT, p. 27, Ent. Nachr. xviii : n. spp.

- Cylistix asiatica*, Perak, p. 343, *orientalis*, Siam, LEWIS, Ann. N. H. (6) ix, n. spp.
- Dendrophilus californicus*, California, HORN, p. 46, Tr. Am. Ent. Soc. xix, n. sp.
- Eblisia cavipyga*, Burma, LEWIS, Ent. M. M. xxviii, p. 102; *E. monticola*, Burma, LEWIS, p. 19, Ann. Mus. Genov. (2) xii : n. spp.
- Epiechnus* : characters of; LEWIS, Ann. N. H. (6) x, p. 23, pl. xix, figs. 8-10.
- E. taprobanae*, Ceylon, p. 355, *birmanus*, Burma, p. 356, LEWIS, Ann. N. H. (6) ix, n. spp.
- Epieurus nemoralis*, Assam, LEWIS, p. 347, Ann. N. H. (6) ix; *E. amandus*, p. 25, *monticola*, p. 26, Java, SCHMIDT, Ent. Nachr. xviii : n. spp.
- Eretmotus* : habits of, and notes on specific characters; LEWIS, Ann. N. H. (6) x, pp. 233-236, pl. xix, figs. 1-7. *E. leprieuri*, Mars., = (*approximans*, Fairm.); LEWIS, p. 350, Ann. N. H. (6) ix.
- E. corpulentus*, *cirtensis*, p. 233, *kabylicæ*, p. 234, *bedeli*, p. 235, LEWIS, *op. cit.* (6) x, n. spp.
- Heterius hornii*, Wyoming, WICKHAM, Psyche, vi, p. 322, n. sp.
- Hister tropicola*, Guinea, p. 23, *punctipennis*, Sierra Leone, *oblongulus*, Turkestan, p. 24, SCHMIDT, Ent. Nachr. xviii; *H. robusticollis*, Natal, p. 104, LEWIS, Ent. M. M. xxviii; *H. pransus*, p. 24, *gentilis*, p. 25, *stenocephalus*, p. 26, *sinuaticollis*, p. 27, *fragosus*, p. 28, *dentipes*, p. 29, *ixion*, p. 30, *striatipennis*, p. 31, Burma, LEWIS, Ann. Mus. Genov. (2) xii; *H. rugistrius*, Bengal, *famulus*, Sumatra, LEWIS, p. 346, Ann. N. H. (6) ix : n. spp.
- Hololepta dilatata*, *H. (Lioderma) pinguis*, Gaboon, SCHMIDT, p. 17, Ent. Nachr. xviii; *H. fœæ*, Burma, LEWIS, p. 17, Ann. Mus. Genov. (2) xii; *H. pervalida*, California, BLAISDELL, p. 337, Zœe, iii : n. spp.
- Idister gestroi*, Burma, LEWIS, p. 18, Ann. Mus. Genov. (2) xii, n. sp.
- Liopygus fumelicus*, Burma, LEWIS, p. 21, Ann. Mus. Genov. (2) xii, n. sp.
- Notodoma solstitiale*, Perak, p. 348, *rufulum*, Borneo, p. 349, LEWIS, Ann. N. H. (6) ix, n. spp.
- Onthophilus tuberculatus*, p. 353, *sculptilis*, p. 354, Burma, LEWIS, Ann. N. H. (6) ix; *O. julii*, Mexico, LEWIS, p. 124, Ent. M. M. xxviii : n. spp.
- Pachycrærus ritsemæ*, Mars., = (*P. violaceipennis*, Lew.); LEWIS, p. 345, Ann. N. H. (6) ix.
- Paratropus severini*, Bengal, LEWIS, p. 142, Ann. Ent. Belg. xxxvi, n. sp.
- Paromalus complanatus*, Panz., = (*Platysoma theryanum*, Reitt.); REITTER, p. 188, Wien. ent. Z. xi.
- P. mendicus*, *viaticus*, p. 33, *fujisanus*, p. 34, *vernalis*, *tardipes*, p. 35, *omineus*, p. 36, *montivagus*, p. 37, Japan, LEWIS, Ann. N. H. (6) ix; *P. indicus*, p. 32, *vermiculatus*, *brevipes*, p. 33, *submetallicus*, p. 34, Burma, LEWIS, Ann. Mus. Genov. (2) xii; *P. ludovici*, N. S. Wales, BLACKBURN, p. 26, Tr. R. Soc. S. Austr. xv : n. spp.
- Platylister*, n. g., type *Platysoma ovatum*, Er.; LEWIS, Ent. M. M. xxviii, p. 103.

- Platysoma solivagum*, Burma, LEWIS, p. 21, Ann. Mus. Genov. (2) xii ;  
*P. jejunum*, Perak, LEWIS, p. 343, Ann. N. H. (6) ix ; *P. striatisternum*, Borneo, LEWIS, p. 103, Ent. M. M. xxviii ; *P. distinctum*, Java, p. 19, *sincerum*, Perak, p. 20, *biimpressum*, Queensland, p. 21, *semilineatum*, *robustum*, Australia, p. 22, SCHMIDT, Ent. Nachr. xviii : n. spp.  
*Plæsius bisinuatus*, Aru Is., SCHMIDT, p. 18, Ent. Nachr. xviii, n. sp.  
*Psiloscelis limatulus*, Assam, LEWIS, p. 345, Ann. N. H. (6) ix, n. sp.  
*Sternocælis* : structure of claws described ; LEWIS, p. 263, Ent. M. M. xxviii.  
*S. viaticus*, Algeria, *id. l. c.*, n. sp.  
*Teretrios walkerii*, Tasmania, LEWIS, p. 353, Ann. N. H. (6) ix, n. sp.  
*Teretriosoma rajah*, Burma, LEWIS, p. 37, Ann. Mus. Genov. (2) xii, n. sp.  
*Triballus onustus*, Zanzibar, *opimus*, Borneo, LEWIS, p. 350, Ann. N. H. (6) ix ; *T. cyclonotus*, *orphanus*, Burma, LEWIS, p. 35, Ann. Mus. Genov. (2) xii : n. spp.  
*Trypeticus crassus*, Perak, SCHMIDT, p. 28, Ent. Nachr. xviii ; *T. nemorivagus*, Burma, p. 351, *prædaceus*, Perak, p. 352, LEWIS, Ann. N. H. (6) ix : n. spp.  
*Xestipyge fryi*, Burma, LEWIS, Ann. N. H. (6) ix, n. sp.

## PHALACRIDÆ.

- [*Cf.* BLACKBURN (93), GUILLEBEAU (373, 378), PÉRINGUEY (673).]  
Revision of the palæarctic species with fresh classification ; GUILLEBEAU, Rev. d'Ent. xi, p. 141.  
*Eustilbus sharpi*, Syria, GUILLEBEAU, p. 191, Rev. d'Ent. xi, n. sp.  
*Grouvelleus*, n. g., for *G. prosternalis*, n. sp., Saigon, GUILLEBEAU, p. cxxxiv, Bull. Soc. Ent. Fr. lxi.  
*Helectrus*, n. g., for *H. brisouti*, Jordan, n. sp., GUILLEBEAU, p. 187, Rev. d'Ent. xi.  
*Litochrus sydneyensis*, N. S. Wales, BLACKBURN, p. 26, Tr. R. Soc. S. Austr. xv ; *L. promontorii*, Cape Colony, PÉRINGUEY, p. 110, Tr. S. African Phil. Soc. vi, 2 : n. spp.  
*Litochroides*, n. g., for *L. sharpi*, Djedda, p. 187, *sinuaticollis*, Ismailia, p. 181, n. spp. ; GUILLEBEAU, Rev. d'Ent. xi.  
*Micromerus*, n. g., for *Litochrus koltzei*, Flach, GUILLEBEAU, p. 189, Rev. d'Ent. xi.  
*Olibrus desbrochersi*, p. 171, *selvei*, p. 177, *bedeli*, p. 180, *bonnairei*, *reysi*, p. 181, *viennensis*, p. 182, *biplagiatus*, *camptoides*, *gentilis*, p. 184, *abeillei*, p. 185, Palæarctic region, GUILLEBEAU, Rev. d'Ent. xi ;  
*O. consanguineus*, Cape Colony, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) : n. spp.  
*Phalacrus substriatus*, metamorphoses ; GUILLEBEAU, p. 194, Rev. d'Ent. xi.  
*P. confusus*, p. 153 (and Échange, 1892, p. 20), *grouvellei*, *insularis*, p. 156, *mayeti*, *championi*, p. 158, Europe, GUILLEBEAU, Rev. d'Ent. xi, n. spp.

*Pryacoderus*, n. g., for *P. lemoroï*, n. sp., Biskra, GUILLEBEAU, p. 187, Rev. d'Ent. xi.

*Tolyphus sedilloti*, Tunis, GUILLEBEAU, p. 163, Rev. d'Ent. xi, n. sp.

## NITIDULIDÆ.

[Cf. ABEILLE (1), BLACKBURN (93), BLATCH & HORNER (103), FAIRMAIRE (262), GROUVELLE (368, 369, 370, 371), GUILLEBEAU (375, 376), PÉRINGUEY (673), REITTER (725).]

*Amphicrossus opacus*, Bengal, GROUVELLE, p. 60, Ann. Ent. Belg. xxxvi, n. sp.

*Amphotis marginata*, habits ; WASMANN, p. 347, Deutsche e. Z. 1892.

*Aporozoum*, n. g., for *Coxelus sylvaticus*, Phil. ; GERMAIN, p. 250, Act. Soc. Chili, ii.

*Brachypeplus ater*, W. Africa, GROUVELLE, p. 292, Ann. Soc. Ent. Fr. lxi ; *B. birmanicus*, p. 834, *fecæ*, p. 835, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii : n. spp.

*Brachypterus obtusus*, Marseilles ; GUILLEBEAU, p. 2, Supp. to Échange, No. 19, 1886 ; *B. opacus*, p. 66, *drusus*, p. 67, Syria, ABEILLE, Rev. d'Ent. xi : n. spp.

*Carpophilus (Urophorus) bicolor*, *heros*, p. 836, *C. (Ecnomorphus) murrayi*, p. 837, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii ; *C. bosschæ*, Borneo, GROUVELLE, Notes Leyd. Mus. xiv, p. 43 : n. spp.

*Cryptarcha alluaudi*, W. Africa, GROUVELLE, p. 293, Ann. Soc. Ent. Fr. xli ; *C. bicolor*, *nigropunctata*, p. 854, *fecæ*, p. 855, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii : n. spp.

*Cyllodes quadrinotatus undulatus*, p. 845, *dubius nigropunctatus*, p. 846, *limbatus*, *ænescens*, p. 847, *humeralis*, p. 848, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii : n. spp.

*Decamerus* and *Diontolobus*, Sol., belong to *Nitidulidæ*, not to *Dermestidæ* ; GERMAIN, p. 250, Act. Soc. Chili, ii.

*Epuræa birmanica*, *consobrina*, p. 840, *reticulata*, p. 841, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii, n. spp.

*Eugoniopus reitteri*, Burma, GROUVELLE, p. 852, Ann. Mus. Genov. (2) xii, n. sp.

*Idethina cincta*, note on ; BLACKBURN, p. 29, Tr. R. Soc. S. Austr. xv.

*Ischæna fecæ*, Burma, GROUVELLE, p. 842, Ann. Mus. Genov. (2) xii, n. sp.

*Librodor egregius*, Burma, GROUVELLE, p. 856, Ann. Mus. Genov. (2) xii, n. sp.

*Lobostoma*, n. g., near *Epuræa*, p. 90, for *L. picea*, n. sp., Obock, p. 91 ; FAIRMAIRE, Rev. d'Ent. xi.

*Meligethes (Acanthogethes) reyi*, France, GUILLEBEAU, Échange, i, No. 7, p. 2, n. sp.

*Mimema tabulæ*, S. Africa, PÉRINGUEY, p. 111, Tr. S. African Phil. Soc. vi, 2, n. sp.

- Neopallodes dentatus*, p. 849, *vicinus*, p. 850, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii, n. spp.
- Notobrachypterus*, n. g., near *Brachypterus*, p. 26, for *N. australis*, *creber*, p. 27, *bifoveatus*, *nitidiusculus*, p. 28, *liliputanus*, p. 29, n. spp., Australia ; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- Pallodes birmanicus*, *fecæ*, Burma, GROUVELLE, p. 851, Ann. Mus. Genov. (2) xii, n. spp.
- Parametopia bosschæ*, Borneo, GROUVELLE, p. 44, Notes Leyd. Mus. xiv, n. sp.
- Physorhina reitteri*, Burma, GROUVELLE, p. 843, Ann. Mus. Genov. (2) xii, n. sp.
- Platamartus*, n. g., near *Cercus*, for *P. jakolewi*, n. sp., Siberia ; REITTER, p. 151, Wien. ent. Z. xi.
- Pocadites dubitabilis*, Burma, GROUVELLE, p. 843, Ann. Mus. Genov. (2) xii, n. sp.
- Pocadius testaceus*, Bengal, GROUVELLE, p. 60, Ann. Ent. Belg. xxxvi, n. sp.
- Rhizophagus oblongicollis*, England, BLATCH & HORNER, Ent. M. M. xxviii, p. 303, n. sp.
- Tetrisus epuræoides*, Burma, GROUVELLE, p. 839, Ann. Mus. Genov. (2) xii, n. sp.
- Tricanus punctatissimus*, p. 852, *striatopunctatus*, p. 853, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii, n. spp.

## TROGOSITIDÆ.

[*Cf.* LÉVEILLÉ (552), XAMBEU (1921).]

- Alindria sedilloti*, = (*sikorai*, Kuw.) ; LÉVEILLÉ, p. cviii, Bull. Soc. Ent. Fr. lxi.
- Leptonyxa fairmairei*, Rio de Janeiro, LÉVEILLÉ, p. xcv, Bull. Soc. Ent. Fr. lxi, n. sp.
- Nemosoma siculum*, Sicily, RAGUSA, p. 193, Nat. Sicil. xi, n. sp.
- Trogosita mauritanica*, metamorphoses ; XAMBEU, p. 153, Ann. Soc. L. Lyon, xxxix.

## COLYDIIDÆ.

- [*Cf.* BLACKBURN (93), FAIRMAIRE (263), GROUVELLE (366, 368), PÉRIN-GUEY (673).]
- Bothrideres capicola*, p. 111, *distinctus*, *scutatus*, p. 112, S. Africa, PÉRIN-GUEY, Tr. S. African Phil. Soc. vi (2), n. spp.
- Corticus syriacus*, Akbès, FAIRMAIRE, p. 144, Ann. Ent. Belg. xxxvi, n. sp.
- Ditoma opaca*, *elongata*, W. Africa, GROUVELLE, p. 296, Ann. Soc. Ent. Fr. lxi, n. spp.
- Mychocerus simonis*, Venezuela, GROUVELLE, p. 102, Ann. Soc. Ent. Fr. lxi, n. sp.
- Orthocerus funicornis*, Bed., *cf. Acotulus* in *Tenebrionidæ*.

- Paryphus erichsoni*, p. 99, *serratus*, *crassus*, p. 100, *obesus*, p. 101, Venezuela, GROUVELLE, Ann. Soc. Ent. Fr. lxi, n. spp.  
*Sparactus* : *Endophleus flexuosus* referred to this; GERMAIN, p. 252, Act. Soc. Chili, ii.  
*Tristaria labralis*, Victoria, BLACKBURN, p. 30, Tr. R. Soc. S. Austr. xv, n. sp.

## CUCUJIDÆ and RHYSSODIDÆ.

- [Cf. BLACKBURN (93), GROUVELLE (367, 368, 369).]  
*Catogenus fœæ*, Burma, GROUVELLE, p. 857, Ann. Mus. Genov. (2) xii, n. sp.  
*Cerylon alluaudi*, p. 297, *infimum*, *striolatum*, p. 298, W. Africa, GROUVELLE, Ann. Soc. Ent. Fr. lxi, n. spp.  
*Cryptamorphia macleayi*, N. S. Wales, BLACKBURN, p. 31, Tr. R. Soc. S. Austr. xv, n. sp.  
*Hyliota fœæ*, p. 858, *fallax*, p. 859, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii, n. spp.  
*Læmophleus australasiae*, Victoria, BLACKBURN, p. 30, Tr. R. Soc. S. Austr. xv; *L. rugifrons*, *mandibularis*, p. 860, *spinosus*, p. 861, Burma, GROUVELLE, Ann. Mus. Genov. (2) xii : n. spp.  
*Myrabolia lindensis*, S. Australia, p. 31, *parva*, N. S. Wales, p. 32, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.  
*Psammæcus simonis*, Philippines, GROUVELLE, p. 287, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Silvanopsis*, n. g., for *S. simonis*, Philippines, p. 286, *raffrayi*, Singapore, p. 287, n. spp.; GROUVELLE, Ann. Soc. Ent. Fr. lxi.  
*Silvanus longicornis*, Philippines, GROUVELLE, p. 285, Ann. Soc. Ent. Fr. lxi; *S. birmanicus*, *fœæ*, Burma, GROUVELLE, p. 863, Ann. Mus. Genov. (2) xii : n. spp.  
*Rhysodes africanus*, W. Africa, GROUVELLE, p. 299, Ann. Soc. Ent. Fr. lxi, n. sp.

## CRYPTOPHAGIDÆ.

- [Cf. BLACKBURN (93), GUILLEBEAU (375), PÉRINGUEY (673), THOMSON (927).]  
*Atomaria godarti*, Marseilles, GUILLEBEAU, Échange, i, No. 6, p. 3; *A. eucalypti*, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. sp.  
*Cænoscelis grandis*, Sweden, THOMSON, Opusc. ent. xvi, p. 1773, n. sp.  
*Cryptophagus plagiatus*, S. Africa, PÉRINGUEY, p. 113, Tr. S. African Phil. Soc. vi (2); *C. gibbipennis*, Victoria, BLACKBURN, p. 32, Tr. R. Soc. S. Austr. xv : n. spp.  
*Emphylyus americanus*, habits; SCHWARZ, P. E. Soc. Wash. ii, p. 227.

## LATHRIDIIDÆ, MYCETOPHAGIDÆ.

- [*Cf.* BAUDI (43), BELON (53), BRISOUT (128), REITTER (725).]  
*Colovocera oculata*, Burma, GESTRO, p. 878, Ann. Mus. Genov. (2) x, n. sp.  
*Corticaria normanna*, Calvados, BRISOUT, p. 68, Rev. d'Ent. xi ; *C. perpulchra*, Taschkent, REITTER, p. 134, Wien. ent. Z. xi : n. spp.  
*Melanophthalma birmana*, Burma, GESTRO, p. 879, Ann. Mus. Genov. (2) x, n. sp.  
*Monotoma punctata*, Sicily, RAGUSA, p. 201, Nat. Sicil. xi, n. sp.  
*Tritoma sicule*, Sicily, BAUDI, p. 121, Nat. Sicil. xi, n. sp.

## DERMESTIDÆ, BYRRHIDÆ.

- [*Cf.* BLACKBURN (93, 94), COUCKE (193), FRIVALDSZKY (309), GUILLEBEAU (376), TRYON (953).]  
 Characters of the *Dermestide* and *Byrrhidae* of Belgium; COUCKE, pp. 69-79, Ann. Ent. Belg. xxxvi.  
*Anthrenus pimpinellæ*, n. var. *latefasciatus*; REITTER, p. 134, Wien. ent. Z. x.  
*Attagenus pantherinus*, parasitic on *Anthophora*; BUYSSON, p. cclvii, Bull. Soc. Ent. Fr. lxi.  
*A. gobicola*, China, FRIVALDSZKY, p. 122, Term. füzetek, xv, n. sp.  
*Trogoderma froggatti*, N. S. Wales, BLACKBURN, p. 34, Tr. R. Soc. S. Austr. xv; *T. reitteri*, S. Australia, BLACKBURN, p. 208, *t. c.* : n. spp.  
*Dendropinis calva, vestita*, New Guinea, TRYON (953), n. spp.  
*Limnichus variegatus*, Fréjus, GUILLEBEAU, p. 3, Supp. to Échange, No. 19, 1886, n. sp.  
*Pedilophorus aeneus*, F., = (*subparallelus*, Motsch.); REITTER, p. 188, Wien. ent. Z. xi.<sup>1</sup>

## PARNIDÆ, HETEROCERIDÆ.

- [*Cf.* ANGELL (14), GERMAIN (322), GROUVELLE (369, 372), PÉRINGUEY (673).]  
*Dryops opacus, aenescens*, Burma, GROUVELLE, p. 865, Ann. Mus. Genov. (2) xii, n. spp.  
*Elmis columbiensis*, British Columbia, ANGELL, p. 84, Ent. News, iii ;  
*E. anthracinus, trivialis*, p. 245, *scissicollis*, p. 246, *nyctelioides*, p. 247, Chili, GERMAIN, Act. Soc. Chili, ii : n. spp.  
*Macronychus minusculus*, Sumatra, GROUVELLE, p. 187, Notes Leyd. Mus. xiv, n. sp.  
*Potamophilus fœæ, longipes*, Burma, GROUVELLE, p. 864, Ann. Mus. Genov. (2) xii, n. spp.  
*Sostea birmanica*, Tenasserim, GROUVELLE, p. 866, Ann. Mus. Genov. (2) xii, n. sp.  
*Stenelmis testacea, birmanica*, Burma, GESTRO, p. 867, Ann. Mus. Genov. (2) xii ; *S. bosschæ*, Borneo, *sulcata*, Sumatra, GROUVELLE, p. 188, Notes Leyd. Mus. xiv : n. spp.

*Strina promontorii*, S. Africa, PÉRINGUEY, p. 113, Tr. S. African Phil. Soc. vi (2), n. sp.

*Heterocerus capensis, meridionalis*, S. Africa, PÉRINGUEY, p. 114, Tr. S. African Phil. Soc. vi (2), n. spp.

# LUCANIDÆ and PASSALIDÆ.

[Cf. FAIRMAIRE (263), NONFRIED (644, 648), RITSEMA (758, 759, 761 762), TRYON (953).]

List of *Lucanidæ* found in Java, Sumatra, and Nias, RITSEMA, pp. 139-144, Notes Leyd. Mus. xiv.

*Cyclommatus*, list of the described species ; RITSEMA, Notes Leyd. Mus. xiv, pp. 3-6.

*C. frey-gessneri*, Java, RITSEMA, p. 1, t. c.; *C. squamosus*, Borneo, RITSEMA, p. 45, t. c. : n. spp.

*Dorcus parallelus, costatus, brevis*, synonymic note with figg.; HORN, Ent. News, 1892, p. 73, pl. iii.

*Hexarthrius cotesi*, E. India, NONFRIED, p. 365, Berl. Ent. Zeit. xxxvi, n. sp.

*Lucanus cervus*, variation in ♂ mandibles ; BATESON & BRINDLEY, P. Z. S. 1892, p. 593.

*Nigidius oberndorferi*, Nossibé, NONFRIED, p. 118, Ent. Nachr. xviii, n. sp.

*Phalacrognathus muelleri*, habitat, SKUSE, p. 20, P. Linn. Soc. N.S.W. (2) vii.

*Platycerus delagrangi*, Syria, FAIRMAIRE, p. 145, Ann. Ent. Belg. xxxvi, n. sp.

*Prosopocalus serricornis*, n. var. *brunneus*, NONFRIED, p. 119, Ent. Nachr. xviii, &c.

*P. pasteuri*, Java, RITSEMA, p. 31, Notes Leyd. Mus. xi ; *P. tarsalis*, Java, RITSEMA, t. c. p. 191 : n. spp.

*Mastochilus subobliquus*, New Guinea, TRYON (953), n. sp.

# SCARABÆIDÆ.

[Cf. BATESON & BRINDLEY (42), BEDEL (49, 50), BERGROTH (60), BLACKBURN (90, 91, 92, 93, 94, 95), BRENSKE (122, 123, 124, 125), CASEY (161), CROISSANDEAU (194), DISTANT (210), DUVIVIER (230), FAIRMAIRE (262, 263, 264, 268), FRIVALDSZKY (309), GESTRO (328), JACOBSON (443), JAKOWLEFF (451), KRAATZ (514), NEVINSON (635, 636), NONFRIED (642, 643, 644, 646, 647, 648), PÉRINGUEY (672), REITTER (725, 727, 729), SCHWARZ (808), SEMENOW (830, 832, 833, 834), SMITH (864, 865), STILES (901), XAMBEU (1021) ; also *Cetoniini*, p. 119.]

Hours of flight of *Scarabæidæ* ; SCHWARZ (808).

## Coprini.

*Ammæcius elevatus*, metamorphoses ; XAMBEU, p. 165, Ann. Soc. L. Lyon, xxxix.

- Aphodius fossor*, p. 157, *alpinus*, p. 158, *depressus*, p. 162, metamorphoses ; XAMBEU, Ann. Soc. L. Lyon, xxxix. *A. granarius*, p. 1, *depressus*, p. 16, metamorphoses ; XAMBEU, Mœurs, ii.
- A. bidentulus*, *gibbifrons*, Obock, FAIRMAIRE, p. 92, Rev. d'Ent. xi ; *A. yorkensis*, S. Australia, BLACKBURN, p. 209, Tr. R. Soc. S. Austr. xv ; *A. frenchi*, *lindensis*, S. Australia, BLACKBURN, p. 35, t. c. : n. spp.
- Atenius mendax*, Victoria, *torridus*, S. Australia, BLACKBURN, p. 36, Tr. R. Soc. S. Austr. xv, n. spp.
- Ateuchetus*, n. subg. of *Scarabæus* ; BEDEL, p. 283, Abeille, xxvii.
- Athyreus chalybeatus*, Argentine Rep., FAIRMAIRE, p. 242, Ann. Ent. Belg. xxxvi, n. sp.
- Autolethrus*, n. subg. of *Lethrus* ; SEMENOW, Hor. Ent. Ross. xxvi, p. 236.
- Bolboceras serripes*, Fairm., ♂ described ; GESTRO, p. 756, Ann. Mus. Genov. (2) xii.
- B. gagarinei*, Turkestan, FAIRMAIRE, p. cxxii, Bull. Soc. Ent. Fr. lxi ; *B. gaujani*, Obock, FAIRMAIRE, p. 95, Rev. d'Ent. xi ; *B. batesi*, Transvaal, DISTANT, p. 191, pl. i, fig. 5, Naturalist Transvaal : n. spp.
- Catharsius insignis*, *cephalotes*, S. W. Africa, PÉRINGUEY, p. 27, Tr. S. African Phil. Soc. vi, 2, n. spp.
- Chaetopisthes termiticola*, Burma, GESTRO, p. 904, Ann. Mus. Genov. (2) x, n. sp.
- Copris carolina*, anatomy of mouth and homology of mandibles ; SMITH, pp. 83-87, pls. ii & iii, Tr. Am. Ent. Soc. xix.
- Geotrupini* : notes on Jacobsohn's classification ; REITTER, pp. 272-278, Wien. ent. Z. xi.
- Geotrupes* : revision of the genera allied to, or subgenera of ; JACOB-SOHN, Hor. Ent. Ross. xxvi, pp. 245-257. *G. vernalis*, variation ; FAUVEL, p. 57, Rev. d'Ent. xi.
- Glaresis oxiana*, W. Turkestan, SEMENOW, p. 470, Hor. Ent. Ross. xxxvi, n. sp.
- Hybosorus incultus*, S. W. Africa, PÉRINGUEY, p. 31, Tr. S. African Phil. Soc. vi, 2, n. sp.
- Lethrotypes*, n. subg. of *Thorectes* ; JACOBSON, p. 257, Hor. Ent. Ross. xxvi.
- Lethrulus*, n. subg. of *Lethrus*, SEMENOW, p. 235, Hor. Ent. Ross. xxvi.
- Lethrus*, n. subg., see *Autolethrus*, *Lethrulus*, *Scelolethrus*.
- L. ænescens*, p. cxxi, *bradytus*, *mediocris*, p. cxxii, Turkestan, FAIRMAIRE, Bull. Soc. Ent. Fr. lxi ; *L. mandibularis*, p. 182, *forcipatus*, p. 187, Asia Minor, *spinimanus*, Askhabad, p. 190, JAKOWLEFF, Hor. Ent. Ross. xxvi ; *L. (Heteroplistodus) jakowlewi*, Kirghisia, p. 238, *L. (Autolethrus) koshanstschikowi*, Transcaspian region, p. 240, SEMENOW, Hor. Ent. Ross. xxvi : n. spp.
- Mendidius feculentus*, Obock, FAIRMAIRE, p. 93, Rev. d'Ent. xi, n. sp.
- Mesotrypes*, n. subg. of *Thorectes* ; JACOBSON, p. 256, Hor. Ent. Ross. xxvi.

- Neotodon*, n. n. for *Octodon*, Lansb. ; BEDEL, p. 282, Abeille, xxvii.
- Onitis* : synopsis of the Mediterranean species of *Chironitis*, *Onitis*, and *Bubas* ; BEDEL, pp. 250-280, Abeille, xxvii.
- O. suspectus*, *amabilis*, p. 29, *bovinus*, *exiguus*, p. 30, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2 ; *O. intermedius*, China, FRIVALDSZKY, p. 122, Term. füzetek, xv : n. spp.
- Onthophagus furciceps*, Mars., characters of ; HEYDEN, p. 112, Wien. ent. Z. xi. *O. crocatus*, Muls., = (*imitator*, Reit.) ; REITTER, p. 26, Wien. ent. Z. xi. *O. ater*, n. var., *granulipennis*, FRIVALDSZKY, p. 123, Term. füzetek, xv. *O. adelaidæ*, Hope, = (*hostilis*, Har.) ; BLACKBURN, p. 283, P. Linn. Soc. N.S.W. (2) vii.
- O. trispinus*, Margelan, REITTER, p. 63, Wien. ent. Z. xi ; *O. sulcicollis*, Margelan, REITTER, p. 135, t. c. ; *O. quadriarmatus*, Obock, FAIRMAIRE, p. 91, Rev. d'Ent. xi ; *O. geelongensis*, Victoria, BLACKBURN, p. 34, Tr. R. Soc. S. Austr. xv ; *O. blackwoodensis*, *henleyensis*, S. Australia, p. 208, *nitidior*, N. S. Wales, p. 209, BLACKBURN, t. c. ; *O. murchisoni*, Australia, BLACKBURN, p. 25, op. cit. xvi : n. spp.
- Oxysternon macleayi*, Amazons, *pteroderum*, Brazil, NEVINSON, Ent. M. M. xxviii, p. 34, n. spp.
- Phæneus* : synonymic list of the species ; NEVINSON (636).
- P. flohri*, Mexico, NEVINSON, Ent. M. M. xxviii, p. 33, n. sp.
- Proctammodes*, n. n. for *Proctophanes*, Har. (*nec Proctophana*, Lac.) ; BLACKBURN, p. 37, Tr. R. Soc. S. Austr. xv.
- Psammobius plicatulus*, Obock, FAIRMAIRE, p. 95, Rev. d'Ent. xi, n. sp.
- Rhysemus asperocostatus*, *lesifrons*, Obock, FAIRMAIRE, p. 94, Rev. d'Ent. xi, n. spp.
- Scarabæus plausibilis*, S. Africa, PÉRINGUEY, p. 25, Tr. S. African Phil. Soc. vi (2), n. sp.
- Scelolethrus*, n. subg. of *Lethrus* ; SEMENOW, p. 236, Hor. Ent. Ross. xxvi.
- Silotrupes epistomalis*, note on ; CROISSANDEAU, p. lviii, Bull. Soc. Ent. Fr. lxi.
- Thorectes cheroni*, Corsica, CROISSANDEAU, p. ccxxi, Bull. Soc. Ent. Fr. lxi, n. sp.
- Trox scaber*, metamorphoses ; XAMBEU, p. 168, Ann. Soc. L. Lyon, xxxix.
- T. elderi*, *tatei*, S. Australia, p. 37, *eremita*, Centr. Australia, *quadridens*, S. Australia, p. 38, *euclensis*, W. Australia, *augusta*, S. Australia, p. 39, *velutinus*, N. Queensland, p. 40, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.

### *Glaphyrini* and *Melolonthini*.

- Catalogue of *Glaphyrides*, *Systellopides*, *Melolonthides*, and *Euchirides*, described since the Munich Catalogue ; NONFRIED, Berl. Ent. Zeit. xxxvii, pp. 249-290.
- Classification of *Rhizotrogides* and *Melolonthides* ; BRENSKE, pp. 33-38, Berl. Ent. Zeit. xxxvii.
- Ancylonycha holosericea*, Redt., referred to *Hilyotrogus* ; BRENSKE, p. 154, Ent. Nachr. xviii.

- A. cochinchina* (sic), Cochin China, NONFRIED, p. 360, Berl. Ent. Zeit. xxxvi, n. sp.
- Anoxia pilosa*, F., = (*cinerea*, Motsch.) ; SEMENOW, p. 476, Hor. Ent. Ross. xxvi.
- Brahmina* : revision of the genus, referring to it various species placed in other genera, and merging in it *Rhizocolax*, Mots., and *Cryphaebius*, Kraatz ; BRENSKE, Berl. Ent. Zeit. xxxvii, pp. 79-124. *B. rubretra*, Fald., and allied species, notes on ; KRAATZ, Deutsche e. Z. 1892, p. 309. *B. conspersa*, *sibirica*, note on ; BRENSKE, p. 412, t. c.
- B. bengalensis*, Bengal, NONFRIED, p. 229, Berl. Ent. Zeit. xxxvi ; *B. donckieri*, Darjeeling, p. 86, *castanipes*, *sibirica*, E. Siberia, p. 89, *turkestanica*, Turkestan, p. 94, *phytaloides*, Saigon, p. 98, *setosa*, Darjeeling, p. 99, *cotesi*, Sikkim, p. 100, *chinensis*, China, p. 101, *abscessa*, Saigon, p. 102, *siamensis*, Malacca, p. 103, *microphylla*, *tavoyensis*, *flabellata*, E. India, p. 104, *sumatrensis*, Sumatra, *obscura*, Khasia Hills, p. 105, *cribripennis*, Sumatra, p. 106, *rugulosa*, Borneo, p. 107, *heydeni*, Korea, *cardoni*, p. 108, *thoracica*, p. 109, E. India, *striata*, China, p. 112, *himalayica*, *sikkimensis*, E. India, p. 113, *buruensis*, Buroo Is., p. 114, BRENSKE, Berl. Ent. Zeit. xxxvii : n. spp.
- Byrrhomorpha*, n. g., near *Heteronyx*, p. 109, for *B. verres*, p. 110, *ponderosa*, p. 111, n. spp., Australia ; BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.
- Ceraspis elegans*, *imitatrix*, Honduras, NONFRIED, p. 224, Berl. Ent. Zeit. xxxvi, n. spp.
- Cheiragra macleayi*, Victoria, BLACKBURN, p. 482, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Colpochila campestris*, W. Australia, BLACKBURN, p. 103, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Cryphaebius* : validity and characters of the genus ; KRAATZ, Deutsche e. Z. 1892, pp. 307-311.
- Cyphonotus oryctoides*, Transcaspian region, SEMENOW, p. 474, Hor. Ent. Ross. xxvi, n. sp.
- Dejeania bremskei*, Siam, NONFRIED, p. 226, Berl. Ent. Zeit. xxxvi, n. sp.
- Diphucephala elegans*, Victoria, BLACKBURN, p. 481, P. Linn. Soc. N.S.W. (2) vi ; *D. spreta*, W. Australia, BLACKBURN, p. 99, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Empecta cambouei*, Madagascar, NONFRIED, p. 107, Ent. Nachr. xviii, n. sp.
- Encya nigra*, Madagascar, NONFRIED, p. 227, Berl. Ent. Zeit. xxxvi, n. sp.
- Eupegylis*, n. g., *Schizonychides*, for *E. confusa*, n. sp., Congo, DUVIVIER, p. 56, Ann. Ent. Belg. xxxvi.
- Frenchella*, n. g., near *Colpochila*, for *F. lubrica*, n. sp., Victoria, BLACKBURN, p. 104, P. Linn. Soc. N.S.W. (2) vii.
- Glaphyrus sogdianus*, Zerfashan, SEMENOW, p. 477, Hor. Ent. Ross. xxvi, n. sp.
- Haplopsis viridis*, Australia, BLACKBURN, p. 109, P. Linn. Soc. N.S.W. (2) vii, n. sp.

- Heptophylla*, Motsch., characters amended; BRENSKE, p. 155, Ent. Nachr. xviii.
- Heteronyx baldiensis*, p. 485, *terrena*, p. 486, *incognitus*, *alpicola*, p. 487, *tridens*, p. 489, *consanguineus*, p. 490, *proditor*, p. 492, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi; *H. merus*, *arcanus*, p. 106, *protervus*, p. 107, Queensland, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii; *H. rhinoceros*, p. 284, *marcidus*, p. 285, Australia, BLACKBURN, t. c.; *H. severus*, *alienus*, p. 29, *fervidus*, p. 30, *decorus*, *fraserensis*, p. 31, *cribriceps*, p. 32, *siccus*, *helmsi*, p. 33, *furvus*, p. 34, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi : n. spp.
- Holotrichia bicolora*, Heyd., referred to *Hilyotrogus*, BRENSKE, p. 154, Ent. Nachr. xviii.
- H. furinosa*, E. India, NONFRIED, p. 228, Berl. Ent. Zeit. xxxvi; *H. glabrielypeata*, E. India, *cochinchina*, Cochin China, p. 161, *obscura*, Sikkim, p. 162, *lata*, Hong Kong, *richteri*, Borneo, p. 163, *scabrifrons*, Ceylon, p. 164, *behrensi*, Sumatra, *flachi*, Manilla, p. 165, *staudingeri*, Sikkim, p. 166, *frontalis*, *cavifrons*, p. 167, *sericata*, p. 168, *sikkimensis*, p. 169, *biehli*, E. India, *javana*, Java, p. 170, *nitida*, p. 171, *aurosericea*, p. 172, E. India, *forceolata*, Borneo, p. 173, *scrobiculata*, Sikkim, p. 174, *bombycina*, Tenasserim, p. 175, *iridipennis*, *nigricollis*, E. India, p. 177, *singhalensis*, Ceylon, p. 178, *karschi*, E. India, p. 179, *parva*, Ceylon, *sharpi*, Borneo, p. 180, *longicarinata*, *kallies*, p. 181, *standfussi*, Sumatra, p. 182, *maxillata*, Java, p. 183, *anthracina*, p. 184, *cotesi*, *plagiata*, p. 185, E. India, *setosa* (Walk.), Ceylon, p. 186, *bipunctata*, Java, *burmeisteri*, p. 187, *philippinea*, p. 188, Philippines, *inducta* (Walk.), Ceylon, p. 189, *pygidialis*, Sumatra, *glabrifrons*, Khasia Hills, p. 190, *atkinsoni*, S. India, p. 191, BRENSKE, Berl. Ent. Zeit. xxxvii : n. spp.
- Homaloplia ruricola*, metamorphoses; XAMBEU, Mœurs, ii, p. 30. *H. diabolica*, Reitt., = (*ursina*, Fairm.); BRENSKE, p. 170, Ann. Ent. Belg. xxxvi.
- H. ursina*, *mutilata*, Syria, FAIRMAIRE, p. 147, Ann. Ent. Belg. xxxvi, n. spp.
- Hoplia fasciculata*, p. 108, *cornuta*, p. 109, Madagascar, NONFRIED, Ent. Nachr. xviii; *H. siningensis*, China, FRIVALDSZKY, p. 123, Term. füzetek, xv : n. spp.
- Isonychus prasinus*, Honduras, NONFRIED, p. 223, Berl. Ent. Zeit. xxxvi, n. sp.
- Lachnosterna* as intermediate host of a parasite affecting Swine; STILES (901).
- L. senegalensis*, Africa, NONFRIED, p. 106, Ent. Nachr. xviii, n. sp.
- Lachnota bedeli*, Siberia, BERGROTH, p. 98, Wien. ent. Z. xi.
- Lasiopsis*, Er., and allied genera, composition of; BERGROTH, p. 98, Wien. ent. Z. xi.
- L. bergrothi*, Caucasus, REITTER, p. 101, Wien. ent. Z. xi, n. sp.
- Lepidiota pauper*, Sumatra, p. 40, *siamensis*, Siam, p. 41, *nonfriedi*, Hong Kong, p. 42, *crenaticollis*, E. India, p. 43, *richteri*, Himalaya, p. 44,

- L. (Eucirrus) elegans*, Borneo, p. 45, *L. sus*, Malay Penins., *hirsuta*, China, p. 46, *ornata*, Sumatra, p. 47, *africana*, Senegal, p. 48, *reuleauxi*, New Guinea, p. 49, *quedenfeldti*, Aduma, *labrata*, Ternate, p. 50, *oberndorferi*, Sumatra, p. 51, BRENSKE, Berl. Ent. Zeit. xxxvii, n. spp.
- Leucopholis rufa*, p. 52, *pangiena*, p. 53, *celebensis*, Celebes, *sumatrensis*, Sumatra, p. 54, *nigra*, Borneo, p. 55, *lateralis*, Malacca, p. 56, *staudingeri*, Borneo, p. 57, *crassa*, Assam, *elongata*, E. India ?, p. 58, *tristis*, Malacca, p. 59, BRENSKE, Berl. Ent. Zeit. xxxvii, n. spp.
- Liogenys opacicollis*, *bidentulus*, Argentine Rep., FAIRMAIRE, p. 243, Ann. Ent. Belg. xxxvi, n. spp.
- Liparetrus spretus*, p. 482, *alpicola*, p. 483, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi; *L. maurus*, p. 99, *lugens*, p. 100, *adelaidæ*, p. 101, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Liparochrus rufus*, Australia, BLACKBURN, p. 25, Tr. R. Soc. S. Austr. xv, n. sp.
- Mæchidius tibialis*, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. sp.
- Melichrus*, n. g., *Rhizotrogides*, for *M. kolbei*, n. sp., Darjeeling; BRENSKE, p. 156, Ent. Nachr. xviii.
- Melolontha*: ravages and numbers of *M. vulgaris* and *hippocastani* in Sweden; LAMPA (536). *M. hippocastani*, n. var. *baicalica*; REITTER, p. 152, Wien. ent. Z. xi.
- M. siamensis*, Siam; NONFRIED, p. 230, Berl. Ent. Zeit. xxxvi, n. sp.
- Metabolus flavescens*, Turkestan, BRENSKE, p. 153, Ent. Nachr. xviii, n. sp.
- Monotropus starcki*, Charkow, REITTER, p. 142, Wien. ent. Z. xi, n. sp.
- Ocnodus lugubris*, W. Australia, BLACKBURN, p. 105, P. Linn. Soc. N.S.W. (2) vii; *O. spinicollis*, p. 27, *fallax*, *ferrugineus*, p. 28, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi : n. spp.
- Octoplasia*, n. g. for *Lachnosterna lineata* and *princeps*, Shp.; BRENSKE, p. 152, Ent. Nachr. xviii.
- Polyphylla diffracta*, New Mexico, CASEY, p. 18, Ann. N. York Ac. vi, n. sp.
- Pseudoheteronyx*, n. g., near *Heteronyx*, for *P. helwoides*, n. sp., Queensland; BLACKBURN, p. 111, P. Linn. Soc. N.S.W. (2) vii.
- Pseudopholis*, n. g., near *Leucopholis*, p. 57, for *P. squamulosa*, n. sp., Congo, p. 58; DUVIVIER, Ann. Ent. Belg. xxxvi.
- Pseudotrochalus brenskei*, Zambesi, NONFRIED, p. 106, Ent. Nachr. xviii, n. sp.
- Rhabdopholis melolonthoides*, hab. ?, BRENSKE, p. 157, Ent. Nachr. xviii, n. sp.
- Rhizocolax senescens*, = (*Rhizotrogus potanini*, Sem.) ; SEMENOW, p. 473, Hor. Ent. Ross. xxvi.
- Rhizotrogus cicatricosus*, metamorphoses; XAMBEU, p. 173, Ann. Soc. L. Lyon, xxxix. *R. altaicus*, = (*Monotropus suwortzewi*, Sem.) ; SEMENOW, p. 472, Hor. Ent. Ross. xxvi.

- Rhopaea soror, mussoni*, N. S. Wales; BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, p. 112, n. spp.
- Schizonycha angustiformis*, Obock, *aspericollis*, Abyssinia, FAIRMAIRE, p. 96, Rev. d'Ent. xi; *S. curtula*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2 : n. spp.
- Sciton*, n. g., near *Anodontonyx*, p. 101, for *S. ruber*, n. sp., S. Australia, p. 102; BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.
- Serica carneola*, p. 34, *deceptor*, *obesa*, *lucidula*, p. 35, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. v, 2; *S. subglobosa*, Centr. Africa, NONFRIED, p. 105, Ent. Nachr. xviii; *S. picea*, Siam, NONFRIED, p. 359, Berl. Ent. Zeit. xxxvi; *S. iridescens*, Borneo, p. 221, *siamensis*, Siam, p. 222, NONFRIED, Berl. Ent. Zeit. xxxvi : n. spp.
- Symmachia*, n. g., near *Brahmina*, for *S. chinensis*, n. sp., China; BRENSKE, p. 151, Ent. Nachr. xviii.
- Tanyproctus rugulosus*, Syria, FAIRMAIRE, p. 148, Ann. Ent. Belg. xxxvi, n. sp.
- Thyce blaisdelli*, pp. 19 & 214, *squamosa*, p. 20, California, CASEY, Ann. N. York Ac. vi, n. spp.
- Tricholepis grandis*, Cast., = (*Leucopholis manillæ*, Redt.) ; BRENSKE, p. 61, Berl. Ent. Zeit. xxxvii.
- Triodonta flavimana*, Burm., = (*difformipes*, Fair.) ; BRENSKE, p. 170, Ann. Ent. Belg. xxxvi.
- T. modesta*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, p. 36; *T. difformipes*, *dispar*, Syria, FAIRMAIRE, p. 146, Ann. Ent. Belg. xxxvi : n. spp.
- Trochalus modestus*, p. 32, *mærens*, *plagiger*, *rufovittatus*, p. 33, *mæstus*, *plagiatus*, p. 34, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, n. spp.

### Rutelini.

List of *Rutelidæ* described since the Munich Catalogue; NONFRIED (643).

- Adoretus parviceps*, Obock, FAIRMAIRE, p. 93, Rev. d'Ent. xi; *A. sykora*, Madagascar, *kahlei*, Zambesi, p. 110, *fascicularis*, Abyssinia, p. 117, NONFRIED, Ent. Nachr. xviii; *A. flavovittatus*, Siam, p. 362, *castaneus*, Borneo, p. 363, *griseosetosus*, Siam, p. 364, NONFRIED, Berl. Ent. Zeit. xxxvi : n. spp.
- Anomala obscuripes*, Obock, FAIRMAIRE, p. 97, Rev. d'Ent. xi; *A. win-drathi*, Siam, NONFRIED, Berl. Ent. Zeit. xxxvi, p. 361; *A. viridicostata*, p. 86, *hirsutula*, p. 87, *nigripes*, p. 88, S. China, NONFRIED, Ent. Nachr. xviii; *A. australasica*, Queensland, BLACKBURN, p. 113, P. Linn. Soc. N.S.W. (2) vii; *A. (Euchlora) nigra*, p. 234, *A. fruhstorferi*, p. 235, Java, *inscripta*, Siam, p. 236, *pyropyga*, Venezuela, p. 237, NONFRIED, Berl. Ent. Zeit. xxxvi : n. spp.
- Anoplognathus brevicollis*, p. 493, *macleayi*, p. 495, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Areoda magnifica*, Brazil, NONFRIED, p. 238, Berl. Ent. Zeit. xxxvi, n. sp.

- Epectinaspis hondurae*, Honduras, NONFRIED, p. 232, Berl. Ent. Zeit. xxxvi, n. sp.
- Euchlora heydeni*, China, FRIVALDSZKY, p. 124, Term. füzetek, xv, n. sp.
- Gnatholabis dorsalis*, p. 299, *nickerli*, p. 301, Trop. Africa, KRAATZ, Deutsche e. Z. 1892, n. spp.
- Hadropopillia*, n. g., for *Popillia splendida*, Guér.; KRAATZ, p. 289, Deutsche e. Z. 1892.
- Heteroplia siamensis*, Siam, NONFRIED, p. 362, Berl. Ent. Zeit. xxxvi, n. sp.
- Ichnopopillia*, n. g., p. 292, for a part of *Popillia* and *I. moorei*, p. 294, *erythroptera*, p. 295, n. spp., E. India; KRAATZ, Deutsche e. Z. 1892.
- Leucothyreus purpureo-sericeus*, Ecuador; NONFRIED, p. 239, Berl. Ent. Zeit. xxxvi, n. sp.
- Malaia*? *semperi*, Philippines, KRAATZ, p. 178, Deutsche e. Z. 1892 (referred below to *Pseudomalaia*, n. g.), n. sp.
- Parastasia bigibbosa*, Siam, NONFRIED, p. 238, Berl. Ent. Zeit. xxxvi, n. sp.
- Phyllopertha latitarsis*, p. 232, *sericeomicans*, p. 233, Honduras, NONFRIED, Berl. Ent. Zeit. xxxvi, n. spp.
- Pæciloticta*, n. g., p. 290, for *P. princeps*, n. sp., Ceylon, p. 291; KRAATZ, Deutsche e. Z. 1892.
- Popillia*: revision of; KRAATZ, Deutsche e. Z. 1892, pp. 177, &c.
- P. flavoteniata*, Cameroons, NONFRIED, p. 118, Ent. Nachr. xviii; *P. oberthuri*, Zanzibar, p. 184, *candezei*, Fernando-Po, p. 185, *welwichi*, Angola, p. 187, *erythropus*, Sierra Leone, p. 191, *smaragdina*, p. 228, *cupripes*, *lavicollis*, p. 229, *soror*, p. 230, *bitacta*, p. 233, W. Africa, *strigilata*, E. Africa, p. 235, *signifera*, p. 237, *opaca*, p. 238, W. Africa, *perrottetii*, p. 244, S. India, *semicenea*, Kiu-Kiang, p. 251, *simoni*, Hong Kong, p. 252, *viridula*, Thibet, p. 255, *straminipennis*, p. 258, *subquadrata*, p. 259, *anomaloïdes*, p. 260, *6-maculata*, p. 261, China, *few*, p. 269, *testaceipennis*, p. 270, *flavofusciata*, p. 271, Burma, *opacicollis*, p. 272, *nottrotti*, p. 273, *lavicollis*, p. 275, *pilicollis*, p. 278, E. India, *andamanica*, p. 279, Andaman Is., *sumatrensis*, Sumatra, p. 282, *variabilis*, p. 283, *picticollis*, p. 284, *depressiuscula*, p. 286, *depressa*, p. 287, Philippines, KRAATZ, Deutsche e. Z. 1892: n. spp.
- Pseudomalaia*, n. g., for *Popillia pilifera*, Burm., *tagala*, Hell., and *Malaia semperi* (Kr., *suprà*); KRAATZ, p. 296, Deutsche e. Z. 1892.
- Rhinyptia dollei*, *plana*, and *Amphimallon rostratum*, queried as synonyms; FAIRMAIRE, p. 97, Rev. d'Ent. xi.
- R. testacea*, E. India, NONFRIED, p. 230, Berl. Ent. Zeit. xxxvi, n. sp.
- Singhala schabilei*, S. China, NONFRIED, p. 89, Ent. Nachr. xviii, n. sp.
- Spilopopillia*, n. g., for *Popillia serguttata*, Fairm.; KRAATZ, p. 181, Deutsche e. Z. 1892.

*Dynastini.*

- Aneurystypus collaris*, W. Australia, BLACKBURN, p. 286, P. Linn. Soc. N.S.W. (2) vii, n. sp.  
*Corynophyllus metallicola*, N. S. Wales, BLACKBURN, p. 286, P. Linn. Soc. N.S.W. (2) vii, n. sp.  
*Cyclocephala occipitalis*, Argentine Rep., FAIRMAIRE, p. 244, Ann. Ent. Belg. xxxvi, n. sp.  
*Dichodontus renkeni*, Borneo, NONFRIED, p. 365, Berl. Ent. Zeit. xxxvi, n. sp.  
*Ligyrrus bidentulus, distinctus*, Argentine Rep., FAIRMAIRE, p. 244, Ann. Ent. Belg. xxxvi, n. spp.  
*Oryctomorphus* : notes on the species ; GERMAIN, p. 260, Act. Soc. Chili, ii.  
*Phyllognathus fortipes*, Obock ; FAIRMAIRE, p. 98, Rev. d'Ent. xi, n. sp.  
*Pseudoryctes tectus*, Australia, BLACKBURN, p. 211, Tr. R. Soc. S. Austr. xv, n. sp.  
*Xylotrupes gideon*, statistics of variation of horns of male ; BATESON & BRINDLEY, P. Z. S. 1892, p. 589.

*Cetoniini.*

- [Cf. BLACKBURN (91), GESTRO (327), JANSON (454), KOLBE (502, 503, 505, 507, 508), KRAATZ (515, 516, 518), NONFRIED (644, 647, 648), PÉRINGUEY (672, 673), XAMBEU (1021).]  
*Agenius elegans*, Cape Colony, PÉRINGUEY, p. 115, Tr. S. African Phil. Soc. vi (2), n. sp.  
*Anaspilus*, n. g., near *Cymophorus*, p. 140, for *A. rufiventris*, n. sp., Guinea, p. 141 ; KOLBE, S. E. Z. liii.  
*Anelaphinus*, n. g., for *Cetonia dominula*, Har. ; KOLBE, p. 136, S. E. Z. liii.  
*Aphanesthes*, n. g., near *Chordodera*, p. 248, for *A. pseudincoides*, n. sp., Cameroons, p. 249 ; KOLBE, SB. nat. Fr. 1892.  
*Cetonia (Pachnoda) kustai*, Centr. Africa, NONFRIED, p. 122, Ent. Nachr. xviii ; *C. montana*, Himalaya, NONFRIED, p. 371, Berl. Ent. Zeit. xxxvi ; *C. rhododendri*, p. 847, pl. ii, fig. 9, *oatesii*, p. 848, *cariana*, p. 849, Burma, GESTRO, Ann. Mus. Genov. (2) x : n. spp.  
*Cenochilus leoninus*, S. W. Africa, PÉRINGUEY, p. 39, Tr. S. African Phil. Soc. vi (2) ; *C. (Xenogenius) conradti*, E. Africa, KOLBE, p. 71, SB. nat. Fr. 1892 : n. spp.  
*Conradtia*, n. g., near *Diplognatha*, p. 69, for *C. principalis*, n. sp., E. Africa, p. 70 ; KOLBE, SB. nat. Fr. 1892.  
*Corynotrichius*, n. g., *Trichiides*, p. 259, for *C. bicolor*, n. sp., Cameroons, p. 260 ; KOLBE, SB. nat. Fr. 1892.  
*Cymophorus monticola*, E. Africa, KOLBE, p. 71, SB. nat. Fr. 1892 ; *C. toganus*, p. 139, *flavonotatus*, p. 140, Guinea, KOLBE, S. E. Z. liii : n. spp.  
*Digenethle cœlata*, Gestro, = (*ramulosipennis*, Thoms.) ; GESTRO, p. 855, Ann. Mus. Genov. (2) x.

- Diphrontis monticola*, Cameroons, KOLBE, SB. nat. Fr. 1892, p. 257, n. sp.
- Diploa*, n. g., near *Xiphoscelis*, for *D. probes*, n. sp., E. Africa; KOLBE, p. 65, SB. nat. Fr. 1892.
- Diploagnatha montana*, E. Africa, KOLBE, p. 68, SB. nat. Fr. 1892; *D. preussi*, Cameroons, KOLBE, p. 256, t. c. : n. spp.
- Dolichostethus*, n. g., for *Elaphinis atomosparsa*, Fairm.; KOLBE, p. 143, S. E. Z. liii.
- Epistalagma cornuta*, n. sp., for an insect which is probably the ♀ of *E. multiimpressa*, Fairm., KRAATZ, Deutsche e. Z. 1892, p. 377, figured, pl. iv, fig. 4.
- Eucosma breviceps*, Cameroons, KOLBE, p. 253, SB. nat. Fr. 1892; *E. flavoguttata*, Guinea, KOLBE, p. 132, S. E. Z. liii : n. spp.
- Eudicella smithi*, var. *trilineata*, Quedf., = (*thomsoni*, Ancy, and *hacquardi*, Oberth.); KOLBE, p. 63, SB. nat. Fr. 1892.
- Eudoxazus*, n. g., *Trichiides*, p. 72, for *E. conradti*, n. sp., E. Africa, p. 73; KOLBE, SB. nat. Fr. 1892.
- Eupachnoda*, n. g., for *Pachnoda inscripta*; KOLBE, p. 253, SB. nat. Fr. 1892.
- Eutelesthes*, n. g., near *Plæsiorrhina*, for *E. lateralis*, n. sp., Cameroons; KOLBE, SB. nat. Fr. 1892, p. 252.
- Gnathocera hyacinthina*, Kr., = (*schlütti*, Nonf., *infra*), *G. villosa*, Jans., = (*cineta*, Kr.); KRAATZ, p. 172, Deutsche e. Z. 1892. *G. hyacinthina*, Jans., = (*hyacinthina*, Kr.); KRAATZ, t. c. p. 415.
- G. augustata*, p. 128, *flavovirens*, p. 129, Guinea, KOLBE, S. E. Z. liii; *G. schlütti*, Centr. Africa, NONFRIED, p. 121, Ent. Nachr. xviii : n. spp.
- Gnorimus* : table of characters of the palæarctic species; ZOUFAL, pp. 241 & 242, Wien. ent. Z. xi. *G. variabilis*, var. *heydeni* discussed; BECKERS, p. 315, Wien. ent. Z. xi : larva described; FOWLER, Ent. M. M. xxviii, p. 242.
- Hadrosticta*, n. g., near *Argyripa*, for *H. viridiflua*, n. sp., Central America; KRAATZ, p. 378, Deutsche e. Z. 1892.
- Heterorrhina euryrrhina*, p. 838, pl. ii, figs. 1 & 2, *leonardi*, p. 840, figs. 3 & 4, Burma, GESTRO, Ann. Mus. Genov. (2) x, n. spp.
- Jothochilus*, n. g., *Anoplochilinae*, p. 136, for *J. undulatus*, n. sp., Guinea, p. 137; KOLBE, S. E. Z. liii.
- Leucocelis parallelcollis*, *lunicollis*, p. 66, *annulipes*, *polysticta*, p. 67, E. Africa, KOLBE, SB. nat. Fr. 1892, n. spp.
- Liotrichius*, n. g., *Trichiides*, p. 73, for *L. anomala*, n. sp., E. Africa, p. 74; KOLBE, SB. nat. Fr. 1892.
- Lomaptera jamesi*, n. varr. *livi*, p. 366, *nobilitata*, p. 368; NONFRIED, Berl. Ent. Zeit. xxxvi.
- Macrelaphinis kraatzi*, Kolbe, note on; KRAATZ, p. 415, Deutsche e. Z. 1892.
- M. buttneri*, Guinea, *kraatzi*, Ashanti, KOLBE, S. E. Z. liii, p. 134, n. spp.
- Macroma superba*, figured, pl. ii, fig. 11; GESTRO, Ann. Mus. Genov. (2) x.

- M. camerunica*, W. Africa, KOLBE, p. 258, SB. nat. Fr. 1892; *M. exclamationis*, *klingi*, Guinea, KOLBE, p. 138, S. E. Z. liii; *M. insignis*, Burma, GESTRO, p. 852, Ann. Mus. Genov. (2) x; *M. feistmanteli*, S. China, NONFRIED, p. 90, Ent. Nachr. xviii: n. spp.
- Macronota*: this name must replace *Gymnetis*; KRAATZ, Deutsche e. Z. 1892, p. 375.
- M. pulchella*, Burma, GESTRO, p. 844, Ann. Mus. Genov. (2) x, n. sp.
- Mausoleopsis argentata*, Comores Is., NONFRIED, p. 124, Ent. Nachr. xviii, n. sp.
- Mecinsonota*, n. n. for a part of *Macronota*, auct.; KRAATZ, p. 375, Deutsche e. Z. 1892.
- Metallesthes subpilosa*, Queensland, NONFRIED, Berl. Ent. Zeit. xxxvi, n. sp.
- Microvalgus yilgarnensis*, W. Australia, BLACKBURN, p. 115, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Mystroceros*: this genus is established on an individual manufactured from two genera; KRAATZ, p. 373, Deutsche e. Z. 1892.
- Oreoderus planicollis*, p. 862, *humilis*, p. 863, *humeralis*, p. 864, *waterhousei*, p. 865, *rufulus*, p. 867, *brevipennis*, p. 868, *maculipennis*, p. 869, Burma, *borneensis*, Sarawak, p. 875, GESTRO, Ann. Mus. Genov. (2) x, n. spp.
- Orythyrea stictica*, metamorphoses; XAMBEU, p. 178, Ann. Soc. L. Lyon, xxxix.
- Pachnoda stehlini*, n. var. *fuliginosa*; NONFRIED, p. 123, Ent. Nachr. xviii.
- P. vossi*, Cameroons, KOLBE, p. 254, SB. nat. Fr. 1892, n. sp.
- Penthima*, n. g., *Macronotidarum*, p. 313, for *P. nigerrima*, n. sp., Java, p. 314, KRAATZ, Deutsche e. Z. 1892.
- Pilinurgus leveillei*, E. India, NONFRIED, p. 372, Berl. Ent. Zeit. xxxvi, n. sp.
- Plasiorrhina triplagiata*, E. Africa, KOLBE, p. 64, SB. nat. Fr. 1892, n. sp.
- Pleuronota*, n. g., *Macronotidarum*, for *P. octomaculata*, n. sp., Java, KRAATZ, p. 312, Deutsche e. Z. 1892.
- Polystalactica sansibarica*, E. Africa, KOLBE, p. 75, SB. nat. Fr. 1892; *P. stipatrix*, p. 132, *contempta*, p. 133, Guinea, KOLBE, S. E. Z. liii: n. spp.
- Pygora lenoc.* (sic) n. var. *brzowskii*, NONFRIED, p. 120, Ent. Nachr. xviii.
- Rhomborrhina flammea*, n. var. *cariana*, GESTRO, p. 837, Ann. Mus. Genov. (2) x.
- Schizorrhina (Diaphonia) suturata*, Thursday Is., Queensland, NONFRIED, p. 370, Berl. Ent. Zeit. xxxvi, n. sp.
- Somalibia*, Lansb. = (*Dolichostethus*, Kolbe); KRAATZ, p. 415, Deutsche e. Z. 1892.
- Stenovalgus*, n. g., near *Microvalgus*, p. 141, for *S. carinulatus*, n. sp., Guinea, KOLBE, p. 142, S. E. Z. liii.
- Stephanocrates*, n. g., near *Compsocephalus*, for *S. preussi*, n. sp., Cameroons, KOLBE, p. 240, SB. Nat. Fr. 1892.
- Stephanorrhina*, species tabulated, pp. 145, 147, *S. guttata*, n. var. *hybrida*, *geminata*, KOLBE, pp. 148 & 149, S. E. Z. liii.

- S. temeraria*, p. 150, Cameroons, *haroldi*, Angola, p. 153, KOLBE, S. E. Z. liii, n. spp.
- Tæniodera*, varr. of *4-lineata*, *rafflesiana*, *biplagiata*, *antiqua*, and *picta*, Guér., ♀ described; KRAATZ, Deutsche e. Z. 1892, pp. 316-320.  
*T. quadrilineata*, Hope and allies, synonymy; JANSON, pp. 55-57, Notes Leyd. Mus. xiv.
- T. rugosicollis*, p. 315, Malacca, *quadristrigata*, Darjeeling, p. 316, pl. iv, fig. 9, *borneensis*, Borneo, p. 317, KRAATZ, Deutsche e. Z. 1892; *T. goryi*, Java, p. 58, *virgata*, E. India, p. 59, JANSON, Notes Leyd. Mus. xiv : n. spp.
- Taurrhina longiceps*, Guinea, KOLBE, p. 126, S. E. Z. liii, n. sp.
- Tephraea beinlingi*, Zambesi, NONFRIED, p. 124, Ent. Nachr. xviii, n. sp.
- Tmesorrhina iris*, n. var. *cameronica*; NONFRIED, p. 120, Ent. Nachr. xviii.
- T. alpestris*, p. 249, *barombina*, p. 250, Cameroons, KOLBE, SB. nat. Fr. 1892, n. spp.
- Trichius fasciatus*, n. var. *albohirtus*; REITTER, p. 152, Wien. ent. Z. xi.
- T. jansonii*, Burma, GESTRO, p. 854, pl. ii, fig. 12, Ann. Mus. Genov. (2) x, n. sp.
- Trigonophorus foveiceps*, figured, pl. ii, figs. 7, 8, Ann. Mus. Genov. (2) x.
- T. fœv*, Burma, GESTRO, p. 841, pl. ii, fig. 5, Ann. Mus. Genov. (2) x, n. sp.
- Valgus longulus*, p. 855, *stictopygus*, p. 857, *luctuosus*, p. 858, *tristis*, p. 859, *trisinuatus*, p. 860, *doriae*, p. 870, *cristatus*, p. 871, Sarawak, *beccarii*, Celebes, p. 873, *sumatranus*, p. 874, Sumatra, GESTRO, Ann. Mus. Genov. (2) x; *V. thibetanus*, Thibet, NONFRIED, p. 372, Berl. Ent. Zeit. xxxvi : n. spp.
- Xenogenius*, n. subg. of *Cænochilus*, *q.v.*; KOLBE, SB. Nat. Fr. 1892, p. 71.

## BUPRESTIDÆ.

- [*Cf.* BLACKBURN (90, 92, 93, 94, 95), FAIRMAIRE (262, 271), FLEISCHER (284), GERMAIN (322), KERREMANS (481 to 489), NONFRIED (644, 647, 648), PÉRINGUEY (672, 673), POLL (693), THÉRY (921), WATERHOUSE (988), XAMBEU (1021, 1024).]
- Synonymic catalogue of the family, including 4200 species; KERREMANS, Mem. Soc. Ent. Belg. i.
- Reproduction of descriptions of the early stages, with notes on habits, &c.; XAMBEU, Rev. d'Ent. xi, pp. 202-252.
- Acmeodero reflexangula, despecta*, distinctions of; REITTER, p. 188, Wien. ent. Z. xi.
- A. bella*, p. 126, *dives*, p. 136, E. Africa, NONFRIED, Ent. Nachr. xviii; *A. smaragdina*, Centr. Africa, KERREMANS, p. 56, Ann. Ent. Belg. xxxvi; *A. suaveola*, p. 42, *fallax*, p. 43, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2; *A. zambeziana*, Limpopo, PÉRINGUEY, p. 120, t. c.; *A. interrupta*, Bengal, KERREMANS, p. 175, Ann. Ent. Belg. xxxvi : n. spp.

- Edisterna namaqua*, p. 115, *livida*, p. 116, *modesta*, *limbata*, p. 117, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, n. spp.
- Agrilus sinuatus*, p. 9, *roscidus*, p. 17, metamorphoses; XAMBEU, Mœurs, ii.
- A. cavifrons*, Obock, FAIRMAIRE, p. 100, Rev. d'Ent. xi; *A. niveo-guttatus*, p. 210, *birmanicus*, p. 211, *lafertei*, p. 212, *decoloratus*, p. 213, *villosostriatus*, with var. *carmineus*, p. 214, *imbellis*, *inops*, p. 215, *mandaricus*, p. 216, *mixtus*, p. 217, *ineptus*, *neelgheriensis*, p. 218, E. India, KERREMANS, Ann. Ent. Belg. xxxvi; *A. ostrinus*, p. 819, *agnatus*, p. 820, *modicus*, p. 821, *albopictus*, p. 822, *dianthus*, *nubilus*, p. 823, *inamænus*, p. 824, *livens*, p. 825, Burma, KERREMANS, Ann. Mus. Genov. (2) xii; *A. violaceus*, *cyaneomicans*, S. China, NONFRIED, p. 91, Ent. Nachr. xviii; *A. striatocollis*, Philippines, KERREMANS, p. 24, Ann. Soc. Ent. Fr. lxi; *A. terræreginæ*, Queensland, BLACKBURN, p. 220, Tr. R. Soc. S. Austr. xv : n. spp.
- Amorphosomus pectoralis*, E. India, KERREMANS, p. 210, Ann. Ent. Belg. xxxvi; *A. spathatum*, Burma, KERREMANS, p. 818, Ann. Mus. Genov. (2) xii : n. spp.
- Ancylochira salomonii*, Th., synonymy of; HEYDEN, p. 111, Deutsche e. Z. 1892.
- Anthaxia hypomelæna*, metamorphoses; XAMBEU, p. 190, Ann. Soc. L. Lyon, xxxix. *A. morio*, Herbst., = (*similis*, Saund.); REITTER, p. 136, Wien. ent. Z. xi.
- A. semilimbata*, Amasia, FLEISCHER, p. 209, Wien. ent. Z. xi; *A. obockiana*, Africa, FAIRMAIRE, p. 99, Rev. d'Ent. xi; *A. capitata*, *morosa*, India, KERREMANS, p. 173, Ann. Ent. Belg. xxxvi : n. spp.
- Aphanisticus metallescens*, E. India, KERREMANS, p. 219, Ann. Ent. Belg. xxxvi; *A. cephalicus*, Burma, KERREMANS, p. 826, Ann. Mus. Genov. (2) xii; *A. perraudierei*, Cochin China, POLL, p. 19, Ann. Soc. Ent. Fr. lxi; *A. cupricornis*, New Guinea, KERREMANS, p. 1004, Ann. Mus. Genov. (2) xii : n. spp.
- Astræus simplex*, S. Australia, BLACKBURN, p. 211, Tr. R. Soc. S. Austr. xv, n. sp.
- Belionota spheopteroides*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi, 2, p. 43; *B. ignicollis*, Anam, NONFRIED, p. 374, Berl. Ent. Zeit. xxxvi : n. spp.
- Bubastes vagans*, S. Australia, BLACKBURN, p. 213, Tr. R. Soc. S. Austr. xv, n. sp.
- Bubastodes*, n. g., near *Bubastes*, for *B. sulcicollis*, n. sp., S. Australia, BLACKBURN, p. 212, Tr. R. Soc. S. Austr. xv.
- Buprestis impressicollis*, India, KERREMANS, p. 172, Ann. Ent. Belg. xxxvi, n. sp.
- Capnodis tenebrionis*, metamorphoses; XAMBEU, p. 183, Ann. Soc. L. Lyon, xxxix.
- Catoxantha bicolor*, n. var. *cyanura*, KERREMANS, p. 171, Ann. Ent. Belg. xxxvi.

- Chalcogenia viriditarsis*, W. Africa, NONFRIED, p. 125, Ent. Nachr. xviii, n. sp.
- Chalcophora patricia*, p. 118, *confusa*, p. 119, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. spp.
- Chalcotenia gigantea*, New Guinea, NONFRIED, p. 374, Berl. Ent. Zeit. xxxvi ; *C. cupreosuturata*, Abyssinia, FAIRMAIRE, p. 101, Rev. d'Ent. xi : n. spp.
- Chrysobothrys nana*, Turkestan, FAIRMAIRE, p. clii, Bull. Soc. Ent. Fr. lxi ; *C. carinata*, p. 197, *quadraticollis*, p. 198, *violacea*, p. 199, E. India, KERREMANS, Ann. Ent. Belg. xxxvi : n. spp.
- Chrysochroa limbata*, Borneo, NONFRIED, p. 373, Berl. Ent. Zeit. xxxvi, n. sp.
- Chrysodema navicularis*, p. 21, *violacea*, p. 22, *hebes*, p. 23, Philippines, KERREMANS, Ann. Soc. Ent. Fr. lxi, n. spp.
- Corabus rubi*, metamorphoses ; XAMBEU, Mœurs, ii, p. 15.
- C. dorsalis*, *cæruleus*, p. 200, *cyaneopictus*, p. 201, *chloropictus*, *modestus*, p. 202, *fulgidiceps*, *smaragdineus*, p. 203, E. India, KERREMANS, Ann. Ent. Belg. xxxvi ; *C. fææ*, p. 811, *fossulatus*, p. 812, *gestroi*, p. 813, Burma, KERREMANS, Ann. Mus. Genov. (2) xii : n. spp.
- Cryptodactylus cyaneoniger*, p. 207, *scutellaris*, *cuprascens*, p. 209, E. India, KERREMANS, Ann. Ent. Belg. xxxvi, n. spp.
- Curis discoidalis*, W. Australia, BLACKBURN, p. 214, Tr. R. Soc. S. Austr. xv, n. sp.
- Cylindromorphus orientalis*, Manilla, KERREMANS, p. 26, Ann. Soc. Ent. Fr. lxi, n. sp.
- Cyphogastra plicata*, Philippines, KERREMANS, p. 23, Ann. Soc. Ent. Fr. lxi ; *C. abdominalis*, Damma I., WATERHOUSE, p. 412, Ann. N. H. (6) x : n. spp.
- Cyria tridens*, Australia, BLACKBURN, p. 41, Tr. R. Soc. S. Austr. xv, n. sp.
- Discoderes quadricornis*, Abyssinia, FAIRMAIRE, p. 100, Rev. d'Ent. xi, n. sp.
- Endelus coraboides*, p. 219, *aureocupreus*, p. 220, E. India, KERREMANS, Ann. Ent. Belg. xxxvi ; *E. curtus*, Tenasserim, KERREMANS, p. 826, Ann. Mus. Genov. (2) xii : n. spp.
- Galbella globosa*, Bengal, KERREMANS, p. 226, Ann. Ent. Belg. xxxvi, n. sp.
- Hypostigmodera*, n. g., near *Stigmodera*, for *H. variegata*, n. sp., Queensland ; BLACKBURN, p. 215, Tr. R. Soc. S. Austr. xv.
- Iridotenia cingulata*, Zanzibar, KERREMANS, p. 51, Ann. Ent. Belg. xxxvi, n. sp.
- Julodis abeillei*, Taurus, THERY, p. celviii, Bull. Soc. Ent. Fr. lxi ; *J. cyphodera*, Turkestan, FAIRMAIRE, p. clii, Bull. Soc. Ent. Fr. lxi : n. spp.
- Melibæus levipennis*, *violaceicollis*, W. Africa, KERREMANS, p. 302, Ann. Soc. Ent. Fr. lxi ; *M. indicolus*, p. 204, *chrysomelinus*, *aurarius*, p. 205, E. India, KERREMANS, Ann. Ent. Belg. xxxvi ; *M. delauneyi*, Hué,

- POLL, p. 19, Ann. Soc. Ent. Fr. lxi ; *M. transversus*, p. 814, *saundersi* = (*cupricollis*, Saund.), *venustus*, p. 815, *magnificus*, p. 816, Burma, KERREMANS, Ann. Mus. Genov. (2) xii : n. spp.
- Melobasis cœrulea*, Engano, KERREMANS, p. 1000, Ann. Mus. Genov. (2) xii ; *M. incerta, ignicauda*, New Guinea, KERREMANS, p. 1002, Ann. Mus. Genov. (2) xii ; *M. monticola*, p. 496, *beltanensis*, p. 499, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi ; *M. subcyanea*, S. Australia, BLACKBURN, p. 288, *op. cit.* (2) vii ; *M. derbyensis*, N. W. Australia, BLACKBURN, p. 44, Tr. R. Soc. S. Austr. xv ; *M. elderi*, Fraser River, BLACKBURN, p. 35, *op. cit.* xvi : n. spp.
- Neocuris* : generic characters ; BLACKBURN, p. 42, Tr. R. Soc. S. Austr. xv.
- N. dilataticollis*, p. 42, *nigricans*, p. 43, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xvii, n. spp.
- Neobubastes*, n. g., near *Bubastes*, for *N. aureocincta*, n. sp., Centr. Australia ; BLACKBURN, p. 213, Tr. R. Soc. S. Austr. xv.
- Paracupta celestis*, New Guinea, KERREMANS, p. 1001, Ann. Mus. Genov. (2) xii, n. sp.
- Paratœnia*, n. g., p. 52, for *P. inornata, aspera*, p. 54, *orbicularis, simplicicollis*, p. 55, n. spp., W. Africa, and including *Chrysodema chrysochlora*, Pall., and *opaca*, Lansb. ; KERREMANS, Ann. Ent. Belg. xxxvi.
- Philanthaxia latifrons*, India, KERREMANS, p. 173, Ann. Ent. Belg. xxxvi ; *P. splendida*, Saigon, POLL, Ann. Soc. Ent. Fr. lxi, p. 17 : n. spp.
- Pæcilonota (Lampra) festiva*, metamorphoses ; XAMBEU, p. 188, Ann. Soc. L. Lyon, xxxix.
- P. magnifica*, Bengal, KERREMANS, p. 171, Ann. Ent. Belg. xxxvi, n. sp.
- Polycesta curta*, Bengal, KERREMANS, p. 174, Ann. Ent. Belg. xxxvi ; *P. paulseni*, Chili, GERMAIN, p. 243, Act. Soc. Chili, ii : n. spp.
- Pseudochrysodema (?) walkeri*, Damma I., WATERHOUSE, p. 411, Ann. N. H. (6) x, n. sp.
- Psiloptera stormi*, Centr. Africa, KERREMANS, p. 56, Ann. Ent. Belg. xxxvi ; *P. hilaris*, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 41 : n. spp.
- Sambus gibbicollis*, p. 206, *melanoderus, nigritus*, p. 207, E. India, KERREMANS, Ann. Ent. Belg. xxxvi ; *S. coloratus*, p. 816, *femoralis*, p. 817, Burma, KERREMANS, Ann. Mus. Genov. (2) xii ; *S. loriet*, New Guinea, KERREMANS, p. 1003, Ann. Mus. Genov. (2) xii : n. spp.
- Sphenoptera potanini*, Jak., = (*procera*, Reit.) ; REITTER, p. 136, Wien. ent. Z. xi.
- S. latescutata*, Turkestan, FAIRMAIRE, p. cliii, Bull. Soc. Ent. Fr. lxi ; *S. leonensis*, W. Africa, p. 137, *nervosa*, Centr. Africa, p. 138, *hova*, Madagascar, p. 139, NONFRIED, Ent. Nachr. xviii ; *S. curta*, p. 180, *impressa*, p. 182, *inocua*, p. 187, *depressa, konbirensis*, p. 188, *crebrepunctata*, p. 189, *fulgidiceps*, p. 190, *auricollis*, p. 191, *deducta*, p. 192, *gossypii*, p. 195, E. India, KERREMANS, Ann. Ent. Belg. xxxvi : n. spp.
- Sternocera orissa*, n. var. *modesta*, PÉRINGUEY, p. 40, Tr. S. African Phil. Soc. vi (2), n. sp.

- Stigmodera minuta*, Queensland, p. 44, *septemmaculata*, S. Australia, p. 45, *skusei*, N. S. Wales, *hostilis*, W. Australia, p. 46, *sternalis*, S. Australia, p. 47, *macleayi*, Queensland, *equina*, S. Australia, p. 48, *quadrinotata*, Victoria, p. 49, *dispar*, p. 50, *canaliculata*, Queensland, *arborifera*, Australia, p. 51, *marcida*, W. Australia, p. 52, *carpentariae*, Queensland, *ornata*, p. 53, *longula*, p. 54, Victoria, BLACKBURN, Tr. R. Soc. S. Austr. xv ; *S. cara*, p. 216, *insignis*, *filiformis*, p. 217, *capucina*, *regia*, p. 218, *ignea*, p. 219, Australia, BLACKBURN, *t. c.* ; *S. elderi*, Victoria Desert, BLACKBURN, p. 36, *op. cit.* xvi : n. spp.
- Strigoptera frenchi*, p. 500, *australis*, *marmorata*, p. 501, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Trachys fleutiauxi*, Hué, POLL, p. 19, Ann. Soc. Ent. Fr. lxi ; *T. aenescens*, p. 221, *subviolacea*, p. 222, *flaviceps*, *obliqua*, p. 223, *transversa*, *bicarinata*, p. 224, *stigmatica*, *integra*, p. 225, KERREMANS, Ann. Ent. Belg. xxxvi ; *T. penicillata*, p. 827, *virescens*, *lyra*, p. 828, *nigra*, p. 829, *vexator*, *rudis*, p. 830, *polita*, p. 831, Burma, KERREMANS, Ann. Mus. Genov. (2) xii ; *T. rugata*, New Guinea, KERREMANS, p. 1005, *t. c.* ; *T. viridula*, *rufescens*, Philippines, KERREMANS, p. 25, Ann. Soc. Ent. Fr. lxi : n. spp.

### THROSCIDÆ, MONOMMIDÆ, EUCNEMIDÆ.

- [*Cf.* BLACKBURN (90, 93), ROST (780).]  
*Aspathines ovatus*, habits ; SCHWARZ, P. E. Soc. Wash. ii, p. 241.  
*Drapetes sulcatus*, Caucasus, ROST, Deutsche e. Z. 1892, p. 402, n. sp.  
*Dromæolus interioris*, S. Australia, BLACKBURN, p. 502, P. Linn. Soc. N.S.W. (2) vi, n. sp.  
*Dyscolocerus heros*, N. S. Wales, BLACKBURN, p. 56, Tr. R. Soc. S. Austr. xv, n. sp.

### ELATERIDÆ.

- [*Cf.* ANGELL (14), BERG (57), BLACKBURN (90, 92, 93), CANDÈZE (152 to 156), CASEY (161), FAIRMAIRE (262, 270), FLEUTIAUX (285), FRIVALDSZKY (309), GORHAM (352), PÉRINGUEY (672), REITTER (725), SCHWARZ (809, 810, 811).]  
*Adelocera carinensis*, vicina, Burma, CANDÈZE, p. 772, Ann. Mus. Genov. (2) x ; *A. cognata*, Engano, CANDÈZE, p. 796, *op. cit.* xii : n. spp.  
*Adiaphorus modestus*, Bengal, CANDÈZE, p. 488, Ann. Ent. Belg. xxxvi, n. sp.  
*Æolus queenslandicus*, N. Queensland, BLACKBURN, p. 296, P. Linn. Soc. N.S.W. (2) vii ; *Æ. pyroblaptus*, Argentine Rep., BERG, p. 61, An. Soc. Arg. xxxiii : n. spp.  
*Agonischius humilis*, p. 493, *limbatus*, p. 494, E. India, CANDÈZE, Ann. Ent. Belg. xxxvi ; *A. latus*, p. 787, *diversus*, *conjugatus*, p. 788, *simplex*, 789, Burma, CANDÈZE, Ann. Mus. Genov. (2) x : n. spp.

- Agrypnus fallaciosus, divergens*, Obock, FAIRMAIRE, p. 101, Rev. d'Ent.  
 xi: *A. lubeculatus*, Engano, CANDÈZE, p. 795, Ann. Mus. Genov. (2)  
 xii : n. spp.
- Alaus mahenus*, Seychelles, FAIRMAIRE, p. cli, Bull. Soc. Ent. Fr. lxi ;  
*A. modiglianii*, Engano, CANDÈZE, p. 797, Ann. Mus. Genov. (2) xii ;  
*A. loricæ*, New Guinea, CANDÈZE, p. 802, t. c. : n. spp.
- Anchastus bengalensis*, India, CANDÈZE, p. 490, Ann. Ent. Belg. xxxvi ;  
*A. insulsus*, New Guinea, CANDÈZE, p. 804, Ann. Mus. Genov. (2)  
 xii : n. spp.
- Aptopus birmanicus*, Burma, CANDÈZE, p. 781, Ann. Mus. Genov. (2) x,  
 n. sp.
- Athous olbiensis*, = (*chamboreti*); BUYSSON, p. xxiv, Bull. Soc. Ent. Fr.  
 lxi. *A. proximus* and *spectabilis*, Hampe, are one species ; KRAATZ,  
 p. 176, Deutsche e. Z. 1892.
- A. sanguinicollis*, Japan, FRIVALDSZKY, p. 124, Term. füzetek, xv,  
 n. sp.
- Campsosternus pastewri*, Nias Is., CANDÈZE, Notes Leyd. Mus. xiv, p. 9,  
 n. sp.
- Cardiophorus rufipes*, n. var. *persicus* ; SCHWARZ, p. 384, Deutsche e. Z.  
 1892.
- C. analis*, Asia Minor, *pellitus*, Turkestan, SCHWARZ, Deutsche e. Z.  
 1892 ; *C. macer*, Bengal, CANDÈZE, p. 493, Ann. Ent. Belg. xxxvi ;  
*C. seminalis*, Burma, CANDÈZE, p. 778, Ann. Mus. Genov. (2) x ;  
*C. victoriensis, eucalypti*, Australia, BLACKBURN, P. Linn. Soc. N.S.W.  
 (2) vi, p. : n. spp.
- Cardiotarsus antennalis*, Burma, CANDÈZE, p. 780, Ann. Mus. Genov. (2)  
 x, n. sp.
- Chalcopidius apacheanus*, Arizona, CASEY, Ann. N. York Ac. vi, p. 16,  
 n. sp.
- Corymbites cirens*, n. var. *stramineus* ; CANDÈZE, p. 228, Ann. Ent. Belg.  
 xxxvi. *C. caricinus, umbricola, lobatus*, characters of ; HAMILTON,  
 p. 296, Canad. Ent. xxiv.
- C. infirmus*, Siberia, REITTER, p. 152, Wien. ent. Z. xi ; *C. weidtii*, British  
 Columbia, ANGELL, p. 84, Ent. News, iii : n. spp.
- Cryptohypnus sericeus*, p. 490, *pictus*, p. 491, E. India, CANDÈZE, Ann. Ent.  
 Belg. xxxvi, n. spp.
- Dactylophysus*, n. g., p. 408, for *D. mendax*, n. sp., Brazil, p. 410, and  
 including *Heterocrepidius tibialis*, Cand. ; FLEUTIAUX, Ann. Soc.  
 Ent. Fr. lxi.
- Diploconus rufulus*, p. 781, *nutritus, ornatus, serricornis*, p. 782, Burma,  
 CANDÈZE, Ann. Mus. Genov. (2) x ; *D. enganensis*, Engano, CAN-  
 DÈZE, p. 799, op. cit. xii : n. spp.
- Elater miniatus* (= *pomoneæ*, auct., nec Steph.), England, GORHAM, Ent.  
 xxv, p. 304 ; *E. wentworthensis*, N. S. Wales, BLACKBURN, p. 297,  
 P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Glypheus alpinus*, Victoria, BLACKBURN, p. 290, P. Linn. Soc. N.S.W. (2)  
 vii, n. sp.

- Glyphochilus montanus*, N. S. Wales, BLACKBURN, p. 290, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Glyphonyx suturalis*, Bengal, CANDÈZE, p. 494, Ann. Ent. Belg. xxxvi ;  
*G. correctus*, Burma, CANDÈZE, p. 789, Ann. Mus. Genov. (2) x :  
 n. spp.
- Hemirrhaphes ruficollis*, Bengal, CANDÈZE, p. 491, Ann. Ent. Belg. xxxvi, n. sp.
- Heteroderes canus*, Bengal, CANDÈZE, p. 489, Ann. Ent. Belg. xxxvi, n. sp.
- Lacon senilis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) p. 44 ; *L. tabularius*, Bengal, CANDÈZE, p. 483, Ann. Ent. Belg. xxxvi ; *L. collisus*, p. 772, *gypsatus*, p. 773, *hilaris*, *subcostatus*, p. 774, Burma, CANDÈZE, Ann. Mus. Genov. (2) x ; *L. indutissimus*, Engano, CANDÈZE, p. 797, *op. cit.* xii ; *L. pupillus*, New Guinea, CANDÈZE, p. 802, *t. c.* ; *L. brightensis*, p. 503, *murrayensis*, *lindensis*, p. 504, *adelaidæ*, p. 505, *duplex*, p. 506, *eucalypti*, p. 507, *andersoni*, p. 508, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi ; *L. mansuetus*, p. 288, *squalescens*, *yilgarnensis*, p. 289, Australia, BLACKBURN, *op. cit.* vii : n. spp.
- Ludius clavus*, Burma, CANDÈZE, p. 786, Ann. Mus. Genov. (2) x, n. sp.
- Megapenthes aspernendus*, Bengal, CANDÈZE, p. 489, Ann. Ent. Belg. xxxvi ; *M. litteratus*, Java, *remotus*, Celebes, CANDÈZE, p. 10, Notes Leyd. Mus. xi ; *M. musivatus*, Engano, CANDÈZE, p. 798, Ann. Mus. Genov. (2) xii ; *M. brunniventris*, New Guinea, CANDÈZE, p. 804, *t. c.* : n. spp.
- Melanotus* : revision of the palæarctic species ; SCHWARZ, pp. 145-164, pl. ii, Deutsche e. Z. 1892.
- M. kraatzi*, Greece, p. 155, *humilis*, Alai Mts., p. 156, *fragilis*, Turkestan, p. 160, *brunnicornis*, China, p. 164 ; SCHWARZ, Deutsche e. Z. 1892 ; *M. repletus*, p. 783, *comatus*, *conicus*, p. 784, Burma, CANDÈZE, Ann. Mus. Genov. (2) x ; *M. hericius*, Engano, CANDÈZE, p. 800, *op. cit.* xii : n. spp.
- Melanoxanthus anticus*, Bengal, CANDÈZE, p. 490, Ann. Ent. Belg. xxxvi ; *M. virgatus*, p. 777, *punctum*, p. 778, Burma, CANDÈZE, Ann. Mus. Genov. (2) x ; *M. palliatus*, *sexguttatus*, Engano, CANDÈZE, p. 799, *t. c.* : n. spp.
- Meristhus indecorus*, Bengal, CANDÈZE, p. 485, Ann. Ent. Belg. xxxvi, n. sp.
- Monocrepidius mitigatus*, Engano, CANDÈZE, p. 798, Ann. Mus. Genov. (2) xii ; *M. disjunctus*, New Guinea, CANDÈZE, p. 803, *t. c.* ; *M. ruficollis*, p. 509, *frontalis*, p. 510, *alpicola*, p. 511, *macleayi*, p. 512, *ovensensis*, *baldiensis*, p. 514, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi ; *M. ingens*, p. 291, *terræreginæ*, p. 292, *picticollis*, *narrabrensis*, p. 293, *mentitor*, p. 294, *olliffi*, p. 295, Australia, BLACKBURN, *op. cit.* vii : n. spp.
- Otocryptus*, n. g., forming a new group *Otocryptites*, p. 486, for *O. cardoni*, n. sp., Bengal ; CANDÈZE, Ann. Ent. Belg. xxxvi.

- Pantolamprus ovampo*, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) p. 45, n. sp.  
*Penia plagiata*, Burma, CANDÈZE, p. 786, Ann. Mus. Genov. (2) x, n. sp.  
*Pericus discedens*, Bengal, CANDÈZE, p. 485, Ann. Ent. Belg. xxxvi, n. sp.  
*Physodactylus foreatostratus*, p. 406, *oberthuri*, *niger*, p. 407, *brasiliensis*, p. 408, Brazil, FLEUTIAUX, Ann. Soc. Ent. Fr. lxi, n. spp.  
*Silesis inflectus*, p. 494, *nigriceps*, p. 495, Bengal, CANDÈZE, Ann. Ent. Belg. xxxvi, n. spp.  
*Singhalenus gibbus*, Bengal, CANDÈZE, p. 487, Ann. Ent. Belg. xxxvi, n. sp.  
*Spheniscosomus*, n. g., for a part of *Melanotus*; SCHWARZ, p. 132, Wien. ent. Z. xi.  
*Teslasena*, n. g., *Physodactylini*, for *Anelastes femoralis*, Luc.; FLEUTIAUX, p. 410, Ann. Soc. Ent. Fr. lxi.

## DASCILLIDÆ.

[Cf. BLACKBURN (90, 92), BOURGEOIS (113).]

- Dascillus calvescens*, *ruforillosus*, Bengal, BOURGEOIS, p. 234, Ann. Ent. Belg. xxxvi, n. spp.  
*Helodes princeps*, p. 517, *cinctus*, *olliffi*, p. 518, *montivagans*, p. 519, *H. (Cyphon?) pictus*, *ovensensis*, *frater*, p. 520, *adelaide*, *spilotus*, p. 521, *lindensis*, p. 522, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi;  
*H. (Cyphon) fenestratus*, N. S. Wales, BLACKBURN, *op. cit.* vii : n. spp.  
*Macrohelodes*, n. g., for *M. lucidus*, *crassus*, p. 298, *intricatus*, *gravis*, p. 299, n. spp., Australia, and including *Helodes princeps* (*suprà*); BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.  
*Scleroocyphon*, n. g., p. 522, for *S. maculatus*, n. sp., Victoria, p. 523; BLACKBURN, P. Linn. Soc. N.S.W. (2) vi.  
*Scirtes helmsi*, Victoria, BLACKBURN, p. 524, P. Linn. Soc. N.S.W. (2) vi, n. sp.

## MALACODERMATA.

[Cf. BLACKBURN (90, 94, 95), BOURGEOIS (112, 113, 114, 210), GESTRO (326, 329, 334), GORHAM (210, 350), OLIVIER (652, 653), PÉRINGUEY (672), WEISE (1000).]

- List of *Lycidæ* of Borneo; BOURGEOIS, p. 42, Notes Leyd. Mus. xiv.  
*Calochromus*: the structure of max. palpi differs sexually; BLACKBURN, p. 528, P. Linn. Soc. N.S.W. (2) vi.  
*Chauliognathus marginatus*, eggs and oviposition; RILEY, p. 186, Canad. Ent. xxiv.  
*Cladophorus (Odontocerus) flabellifer*, p. 496, *sellatus*, *beccarii*, p. 498, *quadraticollis*, *pectinatus*, p. 500, *dorsalis*, p. 501, New Guinea, *diabolicus*, Amboyna, *belzebuth*, p. 502, *stygius*, *infernalis*, p. 503, *acheronticus*, p. 504, *pallidulus*, *parallelus*, p. 505, *rubentipes*, p. 506, *mandibularis*, p. 507, *ornaticollis*, p. 508, *tibialis*, *rufithorax*, p. 509, *dimidiatus*, p. 510, *septemareolatus*, p. 511, *papuensis*, p. 512, *acutangulus*, *obsoletus*, p. 513, New Guinea, BOURGEOIS, Ann. Mus. Genov. (2) xii, n. spp.

- Dasytes squirensis, helmsi*, Australia, BLACKBURN, p. 38, Tr. R. Soc. S. Austr. xvi, n. spp.
- Diaphanes mendax*, p. 597, *plagiator*, p. 598, Burma, OLIVIER, Ann. Mus. Genov. (2) x; *D. apicalis*, Borneo, GORHAM, p. 89, pl. iv, fig. 8, P. Z. S. 1892 : n. spp.
- Ditua nigricornis*, p. 514, *alternata, flaviceps*, p. 515, New Guinea, BOURGEOIS, Ann. Mus. Genov. (2) xii, n. spp.
- Ellychnia californica*, pupa noticed; WICKHAM, p. 201, Bull. Lab. Iowa, ii.
- Hapalochrus opulentus*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 46, n. sp.
- Hedybius amœnus*, Transvaal, GORHAM in Distant, Naturalist Transvaal, p. 197, pl. i, fig. 2, n. sp.
- Heteromastix anticus*, p. 221, *dilataticollis*, p. 222, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Ichthyurus urosipilus*, p. 561, *luctuosus*, p. 562, *fecæ*, p. 564, *longicauda*, p. 566, *nigromaculatus*, p. 569, *montanus*, p. 571, *nigriceps*, p. 573, *agilis*, p. 574, *spinicrus*, p. 576, *pallidus*, p. 578, *vittatus*, p. 579, *laniger*, p. 581, *propomacrus*, p. 583, *ritsemæ*, p. 588, *crassicauda*, p. 589, *laticauda*, p. 590, Burma, GESTRO, Ann. Mus. Genov. (2) x; *I. bourgeoisii*, China, p. 1023, *mouhoti*, p. 1025, *hirundo*, p. 1026, *obscurus*, p. 1028, Siam, *vandepollii*, China, p. 1029, *wallacei*, Singapore, p. 1031, *borneensis*, p. 1032, Borneo, *insularis*, p. 1033, *curvicauda*, p. 1035, *pachygaster*, p. 1036, Singapore, *macrurus*, Cochin China, p. 1037, *davidii*, Kiang-Si, p. 1038, *oberthurii*, Burma, p. 1039, *malayanus*, Java, p. 1041, *melanospilus*, Sylhet, p. 1042, *lucassenii*, Borneo, p. 1043, *beccarii*, Sumatra, p. 1045, *abnormis*, Darjeeling, p. 1046, *afer*, Niger, p. 1047, GESTRO, *t. c.* : n. spp.
- Idgia flavibuccis*, Bengal, BOURGEOIS, p. 237, Ann. Ent. Belg. xxxvi, n. sp.
- Lixius femoralis, eyrensis*, p. 531, *pretiosus*, p. 532, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Lamprophorus morator*, Burma, OLIVIER, p. 596, Ann. Mus. Genov. (2) x, n. sp.
- Lampyrus bicarinata*, Muls., note on; OLIVIER, Bull. Soc. Ent. Fr. lxi, p. xlv.
- Luciola æmula*, p. 601, *seriata*, p. 602, *ægrola*, p. 603, *abscondita*, p. 604, Burma, OLIVIER, Ann. Mus. Genov. (2) x; *L. cribellata*, p. 1010, *pupilla*, 1011, New Guinea, OLIVIER, *t. c.*, n. spp.
- Lycus distant*, Transvaal, BOURGEOIS in Distant, Naturalist Transvaal, p. 196, pl. i, fig. 3, n. sp.
- Malachius*, internal structure of apices of elytra; HOFFBAUER (405). *M. inornatus*, metamorphoses; XAMBEU, Mœurs, ii, p. 44, and Le Nat. 1892, p. 157.
- Maltharchus*, n. g. for *Malthodes brevicollis* and allies; WEISE, p. 408, Deutsche e. Z. 1892.
- Malthodes*: characters of the French species with figures; BOURGEOIS, Faune gallo-rhenane, pp. 173-208.

- M. caudatus*, Carinthia, WEISE, p. 410, Deutsche e. Z. 1892, n. sp.
- Metriorhynchus gigas*, p. 524, *semicostatus*, p. 525, *monticola*, *occidentalis*, p. 526, *latus*, p. 527, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Phengodes laticollis*, ♀ noticed; RILEY & ULKE, P. E. Soc. Wash. ii, p. 227.
- Plateros? cribripennis*, Bengal, BOURGEOIS, p. 236, Ann. Ent. Belg. xxxvi, n. sp.
- Pyrocalia lampyroides*, p. 598, *microceras*, *cribripennis*, p. 599, *feai*, p. 600, Burma, OLIVIER, Ann. Mus. Genov. (2) x; *P. collaris*, Borneo, GORHAM, p. 89, pl. iv, fig. 7, P. Z. S. 1892 : n. spp.
- Rhagonycha nigripes*, metamorphoses; XAMBEU, p. 28, Mœurs, ii.
- Selasia robecchii*, Somaliland, GESTRO, p. 759, Ann. Mus. Genov. (2) xii, n. sp.
- Selenurus variegatus*, p. 220, *sydneyanus*, p. 221, N. S. Wales, BLACKBURN, Tr. R. Soc. N.S.W. xv, n. spp.
- Silis australis*, S. Australia, BLACKBURN, p. 530, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Telephorus victoriensis*, p. 528, *guleatus*, *fusicornis*, p. 529, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Trichalus hypocrita*, p. 40, *flavidus*, p. 41, Borneo, BOURGEOIS, Notes Leyd. Mus. xiv, n. spp.
- Vesta aurantiaca*, figured, pl. iv, fig. 9, noticed, p. 89, GORHAM, P. Z. S. 1892.
- Xylobanus reticulatus*, figured, pl. iv, fig. 6, P. Z. S. 1892.
- X. ritsemæ*, Borneo, BOURGEOIS, p. 39, Notes Leyd. Mus. xiv, n. sp.

## CLERIDÆ.

- [Cf. ABEILLE (2), BLACKBURN (94), DUVIVIER (231), ESCHERICH (259), FAIRMAIRE (262, 263), GESTRO (334), GORHAM (349), LEWIS (556).]
- Callimerus elegans*, p. 720, *suavis*, p. 722, *feæ*, p. 723, *gracilis*, *faustus*, p. 724, *festivus*, p. 725, *pretiosus*, *pallidus*, p. 727, *latesignatus*, p. 728, Burma, GORHAM, Ann. Mus. Genov. (2) xii, n. spp.
- Cladiscus obeliscus*, Japan, LEWIS, p. 185, Ann. N. H. (6) x, n. sp.
- Denops plagiatus*, Obock, FAIRMAIRE, p. 102, Rev. d'Ent. xi, n. sp.
- Isoclerus*, n. g., near *Thaneroclerus*, for *I. pictus*, n. sp., Japan; LEWIS, Ann. N. H. (6) x, p. 191.
- Lemidia pictipes*, *simulans*, p. 222, *munda*, *soror*, *pulchella*, p. 223, *angustula*, *leoparda*, p. 224, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Lyctosoma*, n. g., near *Thaneroclerus*, for *L. parallelum*, n. sp., Japan; LEWIS, p. 192, Ann. N. H. (6) x.
- Neoclerus*, n. g., near *Thaneroclerus*, for *N. ornatulus*, n. sp., Japan; LEWIS, p. 190, Ann. N. H. (6) x.
- Neohydnius*, n. g., near *Hydnocera*, p. 742, for *N. despectus*, n. sp., Burma, p. 743; GORHAM, Ann. Mus. Genov. (2) xii.

- Nolepus*, n. g., *Tillides*, p. 719, for *N. conicicollis*, n. sp., Burma, p. 720 ; GORHAM, Ann. Mus. Genov. (2) xii.
- Ommadius parviceps*, p. 741, *tricinctus*, p. 742, Burma, GORHAM, Ann. Mus. Genov. (2) xii ; *O. nigromaculatus*, Japan, LEWIS, p. 187, Ann. N. H. (6) x : n. spp.
- Opetiopalpus karenicus*, Burma, GORHAM, p. 746, Ann. Mus. Genov. (2) xii, n. sp.
- Opilo foveicollis*, Algeria, ABEILLE, p. cccxxvi, Bull. Soc. Ent. Fr. lxi ; *O. mirus*, Somaliland, GESTRO, p. 761, Ann. Mus. Genov. (2) xii ; *O. hypocaustus*, Burma, GORHAM, p. 730, t. c. ; *O. longipilis*, Obock, FAIRMAIRE, p. 105, Rev. d'Ent. xi ; *O. carinatus*, *niponicus*, Japan, LEWIS, p. 186, Ann. N. H. (6) x : n. spp.
- Orthopleura funebris*, Syria, FAIRMAIRE, p. 148, Ann. Ent. Belg. xxxvi, n. sp.
- Orthrius fœæ*, p. 736, *tarsalis*, p. 737, Burma, GORHAM, Ann. Mus. Genov. (2) xii, n. spp.
- Pelonium lividum*, p. 744, *discrepens*, p. 745, Burma, GORHAM, Ann. Mus. Genov. (2) xii, n. spp.
- Phlæcopus mediozonatus*, Obock, FAIRMAIRE, p. 103, Rev. d'Ent. xi, n. sp.
- Pseudachlamys*, n. g., p. 297, for *P. penicillatus*, n. sp., Congo, p. 298 ; DUVIVIER, Ann. Ent. Belg. xxxvi.
- Spinoza*, n. g., near *Cymatodera*, p. 184, for *S. cœrulea*, n. sp., p. 185, Japan ; LEWIS, Ann. N. H. (6) x.
- Stigmatium obockianum*, Africa, FAIRMAIRE, p. 103, Rev. d'Ent. xi ; *S. birmanicum*, Burma, GORHAM, p. 740, Ann. Mus. Genov. (2) xii : n. spp.
- Tenerus biplagiatus*, Obock, FAIRMAIRE, p. 104, Rev. d'Ent. xi ; *T. cyaneus*, *maculicollis*, *higoni*, Japan, LEWIS, p. 189, Ann. N. H. (6) x : n. spp.
- Thanasimus nigricollis*, *albomaculatus*, Japan, LEWIS, p. 187, Ann. N. H. (6) x, n. spp.
- Thaneroclerus quinquemaculatus*, Burma, GORHAM, p. 738, Ann. Mus. Genov. (2) xii ; *T. aino*, Japan, LEWIS, p. 190, Ann. N. H. (6) x : n. spp.
- Tillicera cleroides*, p. 731, *bibalteata*, p. 732, Burma, GORHAM, Ann. Mus. Genov. (2) xii : n. spp.
- Tillus notatus*, Kl. = (*lewisii*, Kies.) ; LEWIS, p. 185, Ann. N. H. (6) x.
- T. pectinicornis*, Syria, ABEILLE, p. cccxxvi, Bull. Soc. Ent. Fr. lxi ; *T. birmanicus*, Bhamo, GORHAM, p. 729, Ann. Mus. Genov. (2) xii : n. spp.
- Trichodes sipylus* and allies, synonymy ; ESCHERICH, p. 244, Wien. ent. Z. xi ; *T. syriacus* and allies, synonymy ; ESCHERICH, p. 124, Soc. Ent. vii.
- T. suspectus*, Syria, p. 226, *pulcherrimus*, Persia, p. 227, *maximus*, *conjunctus*, Syria, p. 229, *heydeni*, Caucasus, p. 230, ESCHERICH, Wien. ent. Z. xi, n. spp.
- Xenorthrius*, n. g., p. 733, for *X. mouhoti*, p. 734, *subfasciatus*, *balteatus*, p. 735, n. spp., Burma ; GORHAM, Ann. Mus. Genov. (2) xii.

## BOSTRYCHIDÆ, PTINIDÆ, CIOIDÆ.

[Cf. CASEY (161), BLACKBURN (95), FAIRMAIRE (262, 264), FRIVALDSZKY (309), GERMAIN (322), XAMBEU (1023).]

Notes on the *Anobiidæ* of Chili; GERMAIN, pp. 254-259, Act. Soc. Chili, ii.

*Apate rufo-coronata*, Obock, FAIRMAIRE, p. 104, Rev. d'Ent. xi, n. sp.

*Bostrichus sulcicollis*, structural peculiarities and generic position discussed; GERMAIN, p. 259, Act. Soc. Chili, ii.

*Calymmoderus*, recharacterised; GERMAIN, p. 258, Act. Soc. Chili, ii.

*Diplocotes niger*, Poll, and *Diphobia familiaris*, Olliff, are one species; BLACKBURN, p. 300, P. Linn. Soc. N.S.W. (2) vii.

*Dysides plutensis*, Argentine Rep., FAIRMAIRE, p. 245, Ann. Ent. Belg. xxxvi, n. sp.

*Lyctus carolinæ*, p. 13, *californicus*, p. 14, *curtulus*, p. 15, N. America, CASEY, Ann. N. York Ac. vi, n. spp.

*Ocelliger*, Phil., = (*Eurhopalus*, Sol.); GERMAIN, p. 254, Act. Soc. Chili, ii.

*Pachotelus fuscus*, Sol., = (*Anobium hæmorrhoidale*, Phil.); GERMAIN, p. 256, Act. Soc. Chili, ii.

*Ptinus searpunctatus*, metamorphoses; XAMBEU, p. 36, Mœurs, ii, and NICOLAS, Échange, 1892, p. 143, pl. *P. brunneus*, metamorphoses; XAMBEU, Mœurs, ii, p. 42.

*P. senilis*, Obock, FAIRMAIRE, p. 105, Rev. d'Ent. xi, n. sp.

*Sitodrepa panicea*, habits; ROTH, Ent. Tidskr. xiii, p. 254.

*Trogosylon* merged in *Lyctus*; CASEY, p. 12, Ann. N. York Ac. vi.

*Xyletinus* (*Calypterus*) *chinensis*, China, FRIVALDSZKY, p. 124, Term. füzetek, xv, n. sp.

*Xylopertha pustulata*, metamorphoses; XAMBEU, p. 66, Le Nat. 1892.

*X. vidua*, note on; BLACKBURN, p. 39, Tr. R. Soc. S. Austr. xvi.

*X. hexacantha*, Argentine Rep., FAIRMAIRE, p. 245, Ann. Ent. Belg. xxxvi, n. sp.

## TENEBRIONIDÆ.

[Cf. ALLUAUD (8), BLACKBURN (90, 94, 95), BLAISDELL (98), CASEY (161, 162), CHAMPION (347), DISTANT (210), DUVIVIER (230), FAIRMAIRE (261, 262, 263, 264, 265, 267), GESTRO (334), HEYDEN (402), PÉRINGUEY (672, 673), REITTER (725, 726), SENAC (836), ZOUFAL (1026).]

Notes on habits of *Tenebrionidæ* of San Diego; BLAISDELL, Zoe, iii, pp. 102-108.

*Abantis*, n. gen. near *Clitobius*, p. 109, for *A. ænescens*, n. sp., Obock, p. 110; FAIRMAIRE, Rev. d'Ent. xi.

*Acotulus* (sub *Orthocerus*) *funicornis*, Bed., = (*oraniensis*, Reit.); REITTER, p. 26, Wien. ent. Z. xi.

*Acropteron magnicolle*, Venezuela, FAIRMAIRE, p. 90, Ann. Soc. Ent. Fr. lxi, n. sp.

- Adelium parallelum*, Germ., referred to *Seirottrana*; BLACKBURN, p. 540, P. Linn. Soc. N.S.W. (2) vi.
- A. simplex*, Australia, BLACKBURN, p. 44, Tr. R. Soc. S. Austr. xvi; *A. pustulosum*, p. 534, *victoriae*, p. 535, *inconspicuum*, *alpicola*, p. 536, *tropicum*, p. 537, *lindense*, *angulatum*, p. 538, *aequale*, p. 539, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi : n. spp.
- Adesmia leucosticta*, p. 765, *nobilis*, p. 766, Somaliland, GESTRO, Ann. Mus. Genov. (2) xii; *A. (Onymachris) agilis*, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 120 : n. spp.
- Alaphus macilentus*, Arizona, CASEY, p. 61, Ann. N. York Ac. vi, n. sp.
- Amarygmus natalensis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 59, n. sp.
- Ambigatus*, n. g., near *Melanophorus*, for *A. rufonitens*, p. 246, *stricticollis*, *bembidioides*, p. 247, n. spp., Argentine Rep.; FAIRMAIRE, Ann. Ent. Belg. xxxvi.
- Amiantus undosus*, Transvaal, DISTANT, Naturalist Transvaal, p. 199, pl. i, fig. 1, n. sp.
- Anædus posticalis*, Venezuela, FAIRMAIRE, p. 89, Ann. Soc. Ent. Fr. lxi, n. sp.
- Anepsius montanus*, Colorado, CASEY, p. 55, Ann. N. York Ac. vi, n. sp.
- Aræoschizus mexicanus*, Tepetlapa, CHAMPION, p. 491, pl. xxii, fig. 3, Biol. Centr. Am. Col. iv (1), n. sp.
- Argoporis rufipes*, = (*nitida*, Casey); CHAMPION, p. 518, Biol. Centr. Am. Col. iv (1).
- A. unicalcarata*, *tridentata*, p. 519, *laevicollis*, p. 520, Mexico, CHAMPION, t. c., n. spp.
- Arthrodeis byrrrhiformis*, Obock, FAIRMAIRE, p. 106, Rev. d'Ent. xi; *A. plicatus*, Somaliland, GESTRO, p. 764, Ann. Mus. Genov. (2) xii : n. spp.
- Aryenis minor*, Argentine Rep., FAIRMAIRE, p. 251, Ann. Ent. Belg. xxxvi, n. sp.
- Asida*: note on the Central American allies or subgenera, p. 491, *A. sordida*, = (*rugosissima*, *interrupta*), *clathrata*, = (*funesta*), p. 492, *fallax*, = (*favosa*, *similata*), p. 496, *A. collaris*, n. n. for *marginicollis*, Champ., nec Rosenh., p. 499; CHAMPION, Biol. Centr. Am. Col. iv (1).
- Asida geminata*, p. 492, pl. xxii, fig. 8, *intricata*, p. 493, fig. 9, *spinimanus*, fig. 11, p. 494, *tenebrosa*, fig. 12, *fasciculata*, fig. 21, p. 495, *flohri*, fig. 10, p. 496, *morcoides*, fig. 14, *segregata*, p. 497, *foeda*, fig. 16, *tarda*, fig. 17, p. 498, *furcata*, fig. 15, p. 499, *latissima*, fig. 18, *horrida*, fig. 13, p. 500, *unicostata*, fig. 19, p. 501, *ingens*, fig. 20, p. 503, Mexico, CHAMPION, t. c., n. spp.
- Astrotus undatus*, pl. xxii, fig. 25, *erosus*, p. 504, *nosodermoides*, p. 505, fig. 22, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (1), n. spp.
- Azarelius*, n. g., near *Genocnemis*, for *A. sculpticollis*, n. sp., Sumatra; FAIRMAIRE, p. vii, Bull. Soc. Ent. Fr. lxi.

- Blapstinus coronadensis*, California, BLAISDELL, p. 242, Ent. News, iii ; *B. opatrinoides*, *pseudocaneus*, p. 81, *piliferus*, *infinus*, p. 82, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi : n. spp.
- Blepegenes nitidus*, Queensland, BLACKBURN, p. 533, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Branchus opatroides*, Mexico, CHAMPION, p. 507, pl. xxii, fig. 24, Biol. Centr. Am. Col. iv (1), n. sp.
- Calymnus longedentatus*, Venezuela, FAIRMAIRE, p. 83, Ann. Soc. Ent. Fr. lxi, n. sp.
- Capnisa cribratella*, Turkestan, FAIRMAIRE, p. cliii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Carchares*, Pasc., = (*Podoces*, Per.) ; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi, 2.
- Cardigenius densegranatus*, Argentine Rep., FAIRMAIRE, p. 246, Ann. Ent. Belg. xxxvi, n. sp.
- Cardiothorax aripennis*, N. S. Wales, BLACKBURN, p. 226, Tr. R. Soc. S. Austr. xv, n. sp.
- Catamerus fairmairei*, Tabora, ALLUAUD, p. cxxxix, Bull. Soc. Ent. Fr. lxi ; *C. transvaalensis*, S. Africa, PÉRINGUEY, p. 125, Tr. S. African Phil. Soc. vi, 2 : n. spp.
- Cataphronetis soror*, Obock, FAIRMAIRE, p. 110, Rev. d'Ent. xi, n. sp.
- Centrioptera spiculosa*, Mexico, CHAMPION, p. 508, Biol. Centr. Am. Col. iv (1), n. sp.
- Centronopus bimaculatus*, Mexico, CHAMPION, p. 521, pl. xxiii, fig. 1, Biol. Centr. Am. Col. iv (1), n. sp.
- Chalcopterus eremita*, p. 44, *meyricki*, p. 45, W. Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi, n. spp.
- Chartopteryx victoriensis*, Australia, BLACKBURN, p. 226, Tr. R. Soc. S. Austr. xv, n. sp.
- Choaspes simonis*, Venezuela, FAIRMAIRE, p. 80, Ann. Soc. Ent. Fr. lxi, n. sp.
- Cibdelis levigata*, California, CASEY, p. 60, Ann. N. York Ac. vi, n. sp.
- Clitobius levipennis*, Obock, *strongyloides*, Zambesi, FAIRMAIRE, p. 111, Rev. d'Ent. xi, n. spp.
- Colpotus magnicollis*, Syria, FAIRMAIRE, p. 148, Ann. Ent. Belg. xxxvi, n. sp.
- Conibiosoma laciniata*, Arizona, CASEY, p. 64, Ann. N. York Ac. vi, n. sp.
- Cryptoglossa granulifera*, Mexico, CHAMPION, p. 508, Biol. Centr. Am. Col. iv (1), n. sp.
- Cyclosattus*, n. g., for *Eusattus websteri* (n. sp. *infra*) ; CASEY, p. 710, Ann. N. York Ac. vi.
- Cyrtosoma oblongulum*, *impressipenne*, Venezuela, FAIRMAIRE, p. 89, Ann. Soc. Ent. Fr. lxi, n. spp.
- Dadrosis victoriæ*, Australia, BLACKBURN, p. 533, P. Linn. Soc. N.S.W. (2) vi ; *D. monticola*, N. S. Wales, BLACKBURN, p. 227, Tr. R. Soc. S. Austr. xv : n. spp.

- Diastrinus brevicollis*, p. 80, *impressicollis*, p. 81, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi, n. spp.
- Dichtrethus angustipennis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 52, n. sp.
- Elæodes eschscholtzi*, = (*wickhami*); CHAMPION, p. 511, Biol. Centr. Am. Col. iv (1).
- Eleodes interrupta*, California, BLAISDELL, Ent. News, iii, p. 241; *E. rileyi*, p. 57, *nitidus*, Arizona, *compositus*, Texas, p. 58, CASEY, Ann. N. York Ac. vi; *E. macrura*, p. 511, *polita*, *segregata*, p. 513, *olidu*, p. 516, *peropaca*, *tessellata*, p. 517, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (1) : n. spp.
- Emmenastus belti*, = (*rotundicollis* and *intermedius*), p. 480, *alatus*, = (*salvini*), p. 482; CHAMPION, Biol. Centr. Am. Col. iv (1).
- E. mexicanus*, *subapterus*, p. 481, *seriatus*, *constrictus*, p. 482, *stolidus*, p. 483, *igualensis*, p. 484, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (1), n. spp.
- Emyon scabrosus*, S. W. Africa, PÉRINGUEY, p. 58, Tr. S. African Phil. Soc. vi (2), n. sp.
- Epairops levigata*, *variegata*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 55, n. spp.
- Epitragodes julichi*, Texas, CASEY, p. 55, Ann. N. York Ac. vi, n. sp.
- Epitragus*: tabulation of the N. American species; CASEY, p. 53, Ann. N. York Ac. vi. *E. canus*, figured and noticed, p. 487, pl. xxii, fig. 5, *E. rorulentus*, = (*scutatus*), p. 486; CHAMPION, Biol. Centr. Am. Col. iv (1).
- E. cristatus*, p. 485, Mexico, pl. xxii, fig. 4, *ruatanensis*, Honduras, p. 488, CHAMPION, Biol. Centr. Am. Col. iv (1); *E. vestitus*, Arizona, CASEY, p. 53, Ann. N. York Ac. vi; *E. parumpunctatus*, p. 78, *angustiformis*, p. 79, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi; *E. æneus*, *rufocastaneus*, p. 247, *nitidicollis*, *crassus*, p. 248, *nanus*, Argentine Rep., *minutissimus*, p. 249, Brazil, FAIRMAIRE, Ann. Ent. Belg. xxxvi : n. spp.
- Eulabis laticornis*, California, CASEY, p. 59, Ann. N. York Ac. vi, n. sp.
- Eusattus websteri*, Colorado, CASEY, p. 56, Ann. N. York Ac. vi; *E. venosus*, p. 509, *sculptus*, *mexicanus*, *obliteratus*, p. 510, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (1) : n. spp.
- Glyptotus yucatanus*, Mexico, CHAMPION, p. 524, Biol. Centr. Am. Col. iv (1), n. sp.
- Haporema*, n. g., ? near *Misolampidius*, for *H. decipiens*, n. sp., Obock; FAIRMAIRE, p. 109, Rev. d'Ent. xi.
- Hedyphanes koltzei*, Turkestan, HEYDEN, p. 108, Deutsche e. Z. 1892, n. sp.
- Helæus aridus*, p. 41, *debilis*, *lubricus*, p. 42, *ingens*, p. 43, Centr. Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi, n. spp.
- Helopinus costatus*, = (*elegans*, Baudi, and *misolampoides*, Lac.); FAIRMAIRE, p. 112, Rev. d'Ent. xi.
- Helops cerberus*, metamorphoses; XAMBEU, Mœurs, ii, p. 11.

- H. blaisdelli*, p. 66, *discipula*, p. 67, California, *cylindriciformis*, New Mexico, p. 68, CASEY, Ann. N. York Ac. vi, n. spp.
- Himatismus pavesii*, Somaliland, GESTRO, p. 769, Ann. Mus. Genov. (2) xii, n. sp.
- Histiæa*, n. g., near *Anemia*, p. 107, for *H. bidentula*, n. sp., Obock, p. 108 ; FAIRMAIRE, Rev. d'Ent. xi.
- Hopatrum elderi*, p. 39, *longicorne*, p. 40, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi, n. spp.
- Hoplonyx distinctus*, Congo, DUVIVIER, p. 163, Ann. Ent. Belg. xxxvi ; *H. ingratus*, S. W. Africa, PÉRINGUEY, p. 59, Tr. S. African Phil. Soc. vi (2) ; *H. vicinus*, Transvaal, PÉRINGUEY, t. c. : n. spp.
- Hyperops plicicollis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 50, n. sp.
- Idiobates*, n. g. for *Tenebrio castaneus*, Knoch ; CASEY, p. 62, Ann. N. York Ac. vi.
- Idricus pacificus*, S. Africa, PÉRINGUEY, p. 122, Tr. S. African Phil. Soc. vi (2), n. sp.
- Isicerdes vicinus*, Central America, CHAMPION, p. 524, Biol. Centr. Am. Col. iv (1), n. sp.
- Isostira raucipennis*, Queensland, BLACKBURN, p. 225, Tr. R. Soc. S. Austr. xv, n. sp.
- Lasiostola costuligera*, Margelan, HEYDEN, p. 107, Deutsche e. Z. 1892, n. sp.
- Leptodes*, characters and synonymy ; REITTER, pp. 93-96, Wien. ent. Z. xi.
- L. semenowi*, Araxes Valley, REITTER, p. 66, Wien. ent. Z. xi ; *L. heydeni*, Turkestan, REITTER, t. c. p. 95 : n. spp.
- Licinoma pallipes*, Australia, BLACKBURN, p. 542, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Lyphia striolata*, Obock, FAIRMAIRE, p. 111, Rev. d'Ent. xi, n. sp.
- Mesabates spissicornis*, p. 479, *inaequalis*, p. 480, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (1), n. spp.
- Mesostenopa auberti*, Obock, FAIRMAIRE, p. 107, Rev. d'Ent. xi, n. sp.
- Micrantereus levior*, Obock, FAIRMAIRE, p. 114, Rev. d'Ent. xi, n. sp.
- Mityx politus*, = (*lævis*) ; CHAMPION, p. 520, Biol. Centr. Am. Col. iv (1).
- Nosoderma inaequale*, Say, = (*morbillosum*, Sol.) ; CHAMPION, p. 490, Biol. Centr. Am. Col. iv (1).
- Nuptis laticollis*, Panama, CHAMPION, p. 523, Biol. Centr. Am. Col. iv (1), n. sp.
- Odontopezus asper*, Usagara, ALLUAUD, p. cccxxxviii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Ætæus similis*, Central America, CHAMPION, p. 523, Biol. Centr. Am. Col. iv (1), n. sp.
- Ologlyptus hebes*, Mexico, CHAMPION, p. 506, pl. xxii, fig. 23, Biol. Centr. Am. Col. iv (1), n. sp.
- Opatroides curtulus*, Syria, FAIRMAIRE, p. 149, Ann. Ent. Belg. xxxvi, n. sp.

- Oxycara breviscula*, Obock, FAIRMAIRE, p. 107, Rev. d'Ent. xi, n. sp.
- Palembus*, n. g. near *Oplocephala* for *P. ocularis*, n. sp., Florida; CASEY, p. 65, Ann. N. York Ac. vi.
- Paranemia*, n. g., *Trachyscelidarum*, for *P. schroderi*, n. sp., Turkestan; HEYDEN, p. 103, Deutsche e. Z. 1892.
- Phymatodes denticollis*, Caracas, p. 86, *clavicornis*, Buenos Aires, p. 87, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi, n. spp.
- Pimelia*, characters and synonymy of the species of the Canaries; SÉNAC, pp. 103-108, Ann. Soc. Ent. Fr. lxi. *P. thomsoni*, redescribed; SÉNAC, p. lxxiii, Bull. Soc. Ent. Fr. lxi.
- P. alluaudi*, Canary Is., SÉNAC, p. 107, Ann. Soc. Ent. Fr. lxi, n. sp.
- Pimeliopsis*, n. g. *Epiphysides*, for *P. granulata*, n. sp., Mexico, p. 477, pl. xxii, fig. 1; CHAMPION, Biol. Centr. Am. Col. iv (1).
- Platydemia contractum*, Venezuela, FAIRMAIRE, p. 84, Ann. Soc. Ent. Fr. lxi; *P. basicorne*, Argentine Rep., FAIRMAIRE, p. 250, Ann. Ent. Belg. xxxvi : n. spp.
- Platyphanes creber*, Queensland, BLACKBURN, p. 225, Tr. R. Soc. S. Austr. xv, n. sp.
- Pœcilesthus vagelineatus*, Venezuela, FAIRMAIRE, p. 91, Ann. Soc. Ent. Fr. lxi, n. sp.
- Pogonobasis hirsuta*, S. W. Africa, PÉRINGUEY, p. 51, Tr. S. African Phil. Soc. vi (2), n. sp.
- Praogena tristis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. sp.
- Psammodes pachysoma*, p. 52, *errans*, p. 53, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. spp.
- Pyres* (sub *Centronopus*) *speciosus*, Pasc., = (*metallicus*, Champ.); CHAMPION, p. 521, Biol. Centr. Am. Col. iv (1).
- Rhinodus*, n. g. near *Chetyllus*, for *R. asper*, p. 87, *simonis*, *parcegranatus*, *striatopunctatus*, p. 88, n. spp., Venezuela; FAIRMAIRE, Ann. Soc. Ent. Fr. lxi.
- Rhytidonota absurda*, Somaliland, GESTRO, p. 768, Ann. Mus. Genov. (2) xii, n. sp.
- Rues*, n. g. for *Helops ovipennis*, Casey; CASEY, p. 66, Ann. N. York Ac. vi.
- Saragus tricarinatus*, Australia, BLACKBURN, p. 43, Tr. R. Soc. S. Austr. xvi, n. sp.
- Scleron amplicolle*, Obock, FAIRMAIRE, p. 108, Rev. d'Ent. xi, n. sp.
- Seirotana simplex*, p. 540, *monticola*, p. 541, *dispar*, p. 542, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi; *S. major*, N. S. Wales, BLACKBURN, p. 228, Tr. R. Soc. S. Austr. xv : n. spp.
- Sepidiopsis*, n. g., near *Sepidium*, p. 771, for *S. cornigera*, p. 772, *villosa*, p. 773, n. spp., Somaliland; GESTRO, Ann. Mus. Genov. (2) xii.
- Sepidium ovampoense*, S. W. Africa, PÉRINGUEY, p. 55, Tr. S. African Phil. Soc. vi (2); *S. zambeianum*, S. Africa, PÉRINGUEY, p. 123, t. c. : n. spp.
- Sepidostenus*, = (*Sepidiacis*); GESTRO, p. 775, Ann. Mus. Genov. (2) xii.

- Solenomerus velox*, S. W. Africa, PÉRINGUEY, p. 58, Tr. S. African Phil. Soc. vi (2), n. sp.
- Stenocara alborillosa*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 49; *S. intermedia*, S. Africa, PÉRINGUEY, p. 121, t. c. : n. spp.
- Stibia maritima*, California, CASEY, p. 52, Ann. N. York Ac. vi, n. sp.
- Strongylium variolosum*, Congo, DUVIVIER, p. 164, Ann. Ent. Belg. xxxvi; *S. cyaneum*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2); *S. picicorne*, Venezuela, FAIRMAIRE, p. 92, Ann. Soc. Ent. Fr. lxi; *S. platense*, Argentine Rep., FAIRMAIRE, p. 251, Ann. Ent. Belg. xxxvi : n. spp.
- Tactoderus subopacus*, Obock, FAIRMAIRE, p. 112, Rev. d'Ent. xi, n. sp.
- Tenophthalmus costifer*, Turkestan, HEYDEN, p. 108, Deutsche e. Z. 1892, n. sp.
- Tulanus parallelus*, p. 92, *crenulatus*, p. 93, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi, n. spp.
- Tenebrio angustus*, N. Persia, *syriacus*, Syria, ZOUFAL, p. 284, Wien. ent. Z. xi, n. spp.
- Tenesis*, n. g., near *Amenophis*, for *T. femoratus*, n. sp., Congo, DUVIVIER, p. 163, Ann. Ent. Belg. xxxvi.
- Trachynotus batesi*, = (*scrobiculatus*, Per.), *gracilipes*, = (*attenuatus*, Per.); PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2).
- T. distinctus*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 54; *T. lightfooti*, S. Africa, PÉRINGUEY, p. 122, t. c. : n. spp.
- Trigonopus laticollis*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 57; *T. armaticeps*, Damaraland, PÉRINGUEY, p. 123, t. c. : n. spp.
- Trimytis obovata*, pl. xxii, fig. 2, *flohri*, Mexico, CHAMPION, p. 478, Biol. Centr. Am. Col. iv (1), n. spp.
- Ulosonia ceratodera*, Venezuela, FAIRMAIRE, p. 85, Ann. Soc. Ent. Fr. lxi; *U. parvicornis*, Argentine Rep., FAIRMAIRE, p. 250, Ann. Ent. Belg. xxxvi : n. spp.
- Ulus latus*, California, BLAISDELL, p. 243, Ent. News, iii, n. sp.
- Usagaria australis*, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 56, n. sp.
- Ziælas*, n. g., near *Gonocnemis*, for *Z. insolitus*, n. sp., Hué; FAIRMAIRE p. cx, Bull. Soc. Ent. Fr. lxi.
- Zopherus venosus* is distinct from *lævicollis*, *jourdani*, Sall., = (*mexicanus*, Sol., nec Gray), p. 488, *elegans*, pl. xxii, fig. 7, *nodulosus*, fig. 6, figured; CHAMPION, Biol. Centr. Am. Col. iv (1).
- Zophobas morio*, variation noticed; CHAMPION, p. 522, Biol. Centr. Am. Col. iv (1).
- Zophosis acuticosta*, n. var. *pinardi*; THÉRY, p. clxxxi, Bull. Soc. Ent. Fr. lxi.
- Z. ogadenica*, Somaliland, GESTRO, p. 762, Ann. Mus. Genov. (2) xii; *Z. ampliocollis*, Obock, FAIRMAIRE, p. 106, Rev. d'Ent. xi; *Z. rugatipennis*, *dorsata*, p. 47, *hypocrita*, *nana*, p. 48, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) : n. spp.

## CISTELIDÆ.

[*Cf.* BEDEL (48), CASEY (161), FAIRMAIRE (261, 262, 263), REITTER (725).]

Revision of the N. American genera and species ; CASEY, pp. 69-169, Ann. N. York Ac. vi.

*Allecula seriatopora*, Argentine Rep., FAIRMAIRE, p. 251, Ann. Ent. Belg. xxxvi, n. sp.

*Andrimus*, n. g., p. 155, for a part of *Cteniopus*, and for *A. brunneus*, p. 157, *concolor*, p. 158, *nigrescens*, *convergens*, p. 159, n. spp., N. America ; CASEY, Ann. N. York Ac. vi.

*Apellatus palpalis*, ♀ = (*mastersi*, Macl.) ; BLACKBURN, p. 115, P. Linn. Soc. N.S.W. (2) vii.

*Cistela forticornis*, *flavida*, Syria, FAIRMAIRE, p. 150, Ann. Ent. Belg. xxxvi ; *C. ocularis*, Obock, FAIRMAIRE, p. 115, Rev. d'Ent. xi : n. spp.

*Cteniopus impressicollis*, *C. ? crassus*, Syria, FAIRMAIRE, p. 152, Ann. Ent. Belg. xxxvi, n. spp.

*Dietopsis acuminata*, Venezuela, FAIRMAIRE, p. 94, Ann. Soc. Ent. Fr. lxi, n. sp.

*Eryx asiatica*, Syria, FAIRMAIRE, p. 151, Ann. Ent. Belg. xxxvi, n. sp.

*Gonodera delagrangei*, p. 150, *atronitens*, p. 151, Syria, FAIRMAIRE, Ann. Ent. Belg. xxxvi, n. spp.

*Hymenorus infuscatus*, *picipennis*, p. 90, *melsheimeri*, p. 92, *obesus*, p. 93, *difficilis*, p. 94, *perforatus*, *curticollis*, p. 95, *discrepans*, p. 98, *apacheanus*, p. 99, *exiguus*, p. 100, *helvinus*, *porosicornis*, p. 101, *intermedius*, p. 102, *prolixus*, p. 103, *discretus*, p. 105, *convexus*, p. 106, *dissensus*, *seriatus*, p. 109, *testaceus*, p. 110, *rotundicollis*, p. 111, *inquilinus*, *fuscicornis*, p. 112, *nitidipennis*, p. 113, *inæqualis*, p. 114, *tenellus*, *sobrinus*, p. 115, *floridanus*, p. 116, *fuscus*, p. 117, *macer*, p. 118, *indutus*, p. 119, *gemellus*, p. 121, *uniseriatus*, p. 122, N. America, CASEY, Ann. N. York Ac. vi, n. spp.

*Isomira iowensis*, *discolor*, p. 145, *tenebrosa*, p. 146, *luscitiosa*, p. 148, *monticola*, p. 150, *oblongula*, p. 151, *texana*, p. 153, N. America, CASEY, Ann. N. York Ac. vi, n. spp.

*Lobopoda subcuneata*, p. 79, *oculatifrons*, p. 81, Texas, CASEY, Ann. N. York Ac. vi ; *L. pilosula*, Venezuela, FAIRMAIRE, p. 93, Ann. Soc. Ent. Fr. lxi : n. spp.

*Mycetochara megalops*, p. 129, *gilvipes*, p. 131, *nigerrima*, p. 132, *longipennis*, *pacifica*, p. 139, *procera*, p. 140, *nevadensis*, *crassulipes*, p. 142, N. America, CASEY, Ann. N. York Ac. vi, n. spp.

*Omophlus lepturoides*, metamorphoses ; XAMBEU, Mœurs, ii, p. 33.

*O. (Heliotaurus) brisouti*, Algeria, p. 794, *doriæ*, Tunis, p. 795, BEDEL, Ann. Mus. Genov. (2) x ; *O. densepunctatus*, *cribricollis*, *foveicollis*, Syria, FAIRMAIRE, p. 153, Ann. Ent. Belg. xxxvi ; *O. willbergi*, Margelan, REITTER, p. 136, Wien. ent. Z. xi : n. spp.

- Tedinus*, n. g., p. 153, for *T. angustus*, Georgia, n. sp., p. 154, CASEY, Ann. N. York Ac. vi.  
*Xystropus californicus*, = (*Prostenus fulgidus*, Mäkl.); CASEY, p. 74, Ann. N. York Ac. vi.  
*X. fascicularis*, p. 94, *albovittatus*, *gossypiiatus*, p. 95, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi, n. spp.

## MELANDRYIDÆ, LAGRIIDÆ.

- [Cf. FAIRMAIRE (261), GUILLEBEAU (Échange, 1887-88), PÉRINGUEY (672, 673), XAMBEU (1023).]  
*Abdera triguttata*, metamorphoses; XAMBEU, Mœurs, ii, p. 19.  
*Eutrapela concolor*, n. n. for *unicolor*, Pér.; PÉRINGUEY, p. 134, Tr. S. African Phil. Soc. vi (2).  
*Hysterarthron collare*, Thoms., referred to *Lagriidæ*; RITSEMA, p. 54, Notes Leyd. Mus. xiv.  
*Lagria corrugata*, Zambesi, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 61, n. sp.  
*Orchesia australis*, *reysi*, p. 3, Échange, 1887, No. 31, *subimpressa*, France, No. 32, p. 4, *corsica*, Corsica, p. 13, *abeillei*, Marseilles, p. 14, No. 40, 1888, GUILLEBEAU, n. spp.  
*Statira simonis*, p. 95, *variicollis*, p. 96, Venezuela, FAIRMAIRE, Ann. Soc. Ent. Fr. lxi, n. spp.

## PEDILIDÆ, XYLOPHILIDÆ.

- [Cf. FAIRMAIRE (261), HARRINGTON (389), PIC (678).]  
*Bactrocera cribripennis*, Venezuela, FAIRMAIRE, p. 97, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Ischalia vancouverensis*, N. America, HARRINGTON, p. 132, Canad. Ent. xxiv, n. sp.  
*Macratia comosella*, Venezuela, FAIRMAIRE, p. 97, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Scraptia trotommoides*, Syria, PIC, Échange, 1892, p. 4, n. sp.  
*Xylophilus brevicornis*, Perris, habitat and characters; CHAMPION, Ent. M. M. xxviii, p. 68.  
*X.-Euglenes* (*Anidorus*, M.) *testaceipes*, Algeria, PIC, p. 139, Échange, 1892, n. sp.?

## ANTHICIDÆ.

- [Cf. FAIRMAIRE (261, 262), HORN (418), PIC (678, 680, 682, 684, 685, 687, 689, 690), REITTER (725).]  
*Anthicus*: synonymical notes, with *A. brevipilis*, n. n. for *pilosus*, Pic, *marseuli*, n. n. for *scoticus*, Mars., and *reysi*, n. n. for *puberulus*, Rey; PIC, pp. cexi & cexii, Bull. Soc. Ent. Fr. lxi.

- A. delagrangi*, Syria, *pilosus*, *deslogesi*, Algeria, PIC, p. 43, Échange, 1892;  
*A. henoni*, Algeria, PIC, p. 103, *t. c.*; *A. rubricollis*, Marocco, PIC,  
*t. c.* p. 139 (? n. sp.); *A. roberti*, p. 213, *testaceipes*, p. 214, Algeria,  
 PIC, Rev. Sci. Bourb. v; *A. chobauti*, Algeria, PIC, p. lxxv, Bull. Soc.  
 Ent. Fr. lxi; *A. bedeli*, *carthaginiensis*, Algeria, p. excvii, *bleusei*,  
 Spain, p. excviii, PIC, *t. c.*; *A. demaison*, *lepaumi*, Egypt, PIC,  
 p. ccxxi, *t. c.*; *A. kraatz*, Syria, p. cclxviii, *nitidior*, Turkestan,  
 p. cclxix, *siciliae*, Sicily, *angulifer*, Syria, p. cclxx, *croissandeau*,  
 Corsica, p. cclxxi, PIC, *t. c.* : n. spp.  
*Formicomus pegasus*, Transcaspian Region, REITTER, p. 63, Wien. ent. Z.  
 xi; *F. strigicollis*, *spinicrus*, Obock, FAIRMAIRE, p. 116, Rev. d'Ent.  
 xi : n. spp.  
*Leptaleus truncatulus*, Obock, FAIRMAIRE, p. 116, Rev. d'Ent. xi, n. sp.  
*Notoxus jacqueti*, Wallachia, PIC, p. 4, Échange, 1892; *N. schwarzi*, Utah,  
 HORN, p. 47, Tr. Am. Ent. Soc. xix : n. spp.  
*Tomoderus bosnicus*, Bosnia, PIC, p. 241, Rev. Sci. Bourb. v, n. sp.

#### MORDELLIDÆ, RHIPIDOPHORIDÆ, STYLOPIDÆ.

- [Cf. BLACKBURN (95), CHAMPION (163), CHOBAUT (169), FAIRMAIRE  
 (261, 264), HORN (418).]  
*Conalia baudii*, habits noticed; FLEISCHER, p. 209, Wien. ent. Z. xi.  
*Mordella exilis*, varr.? described, BLACKBURN, p. 46, Tr. R. Soc. S. Austr.  
 xvi.  
*Mordellistena floridensis*, larva and larval habits; RILEY, P. E. Soc. Wash.  
 ii, p. 321, figs. *M. nigricans*, habits; BRODIE, p. 139, Canad. Ent.  
 xxiv.  
*M. tenuis*, Venezuela, FAIRMAIRE, p. 98, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Pentaria oberthuri*, Pyrenees or., CHAMPION, p. 109, Ent. M. M. xxviii,  
 n. sp.  
*Myodites* : note on N. American; HORN, p. 48, Tr. Am. Ent. Soc. xix.  
*Rhipidius abeillei*, Mt. Ventoux, CHOBAUT, Mém. Ac. Vaucluse, xi, p. 219,  
 pl., n. sp.  
*Rhipiphorus basicollis*, Caracas, FAIRMAIRE, p. 98, Ann. Soc. Ent. Fr. lxi;  
*R. argentinus*, Argentine Rep., FAIRMAIRE, p. 252, Ann. Ent. Belg.  
 xxxvi : n. spp.  
*Stylopide* : localities and dates of British; DALE, Ent. M. M. xxviii, p. 50.  
*Elenchus tenuicornis*, parasitic on *Homopteron* (*Liburnia*), SAUNDERS, Ent.  
 M. M. xxxviii, pp. 249 & 297, fig.; details of structure of the male,  
 EATON, *t. c.* p. 250, woodcut.  
*Xenos* sp. : life-history; HUBBARD, pp. 257-261, Canad. Ent. xxiv.

#### CANTHARIDÆ.

- [Cf. BEDEL (51), BLACKBURN (94, 95), CASEY (161), CHAMPION (347),  
 ESCHERICH (258), FAIRMAIRE (263, 264, 271), FRIVALDSZKY (309),  
 PÉRINGUEY (672, 673), PROCHAZKA (705), REITTER (725), WEBER  
 (989).]

List of what is known as to habits and early stages of European *Meloidæ*; BEDEL (51).

*Calospasta mirabilis*, figured, Biol. Centr. Am. Col. iv (2) pl. xviii, fig. 12.

*C. sulcifrons*, Mexico, *id. t. c.* p. 394, pl. xviii, fig. 14, n. sp.

*Cantharis*: CHAMPION, Biol. Centr. Am. Col. iv (2), notices and figures the following—*C. cardinalis*, pl. xx, fig. 12, p. 438, *erythrothorax*, fig. 13, p. 439, *quadrimaculata*, fig. 14, p. 440, *corallifera*, fig. 17, p. 441, *sanguinea*, fig. 19, p. 442, *bipuncticollis*, p. 443, fig. 21, *variabilis*, p. 447, *proteus*, figs. 22 & 23, p. 448.

*C. (Lytta) optata*, S. W. Africa, PÉRINGUEY, p. 65, Tr. S. African Phil. Soc. vi (2); *C. intricata*, p. 441, pl. xx, fig. 18, *erebea*, p. 442, fig. 20, *subviolacea*, p. 445, *scitula*, fig. 25, *signaticollis*, fig. 24, p. 446, *michoacanæ*, p. 447, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (2): n. spp.

*Cephaloon*: notes on the variation of the species; HEYDEN, pp. 165-169, Deutsche e. Z. 1892.

*Cysteodemus wickizeni*, figured; Biol. Centr. Am. Col. iv (2), pl. xvii, fig. 10.

*Epicauta*: the following species are noticed, with much synonymy and many figures, in Biol. Centr. Am. Col. iv (2), by CHAMPION: *E. curvicornis*, pl. xviii, fig. 25, *basimacula*, pl. xix, fig. 1, p. 406, *rufipedes*, fig. 2, p. 407, *rufipennis*, fig. 4, p. 408, *terminata*, fig. 5, p. 409, *funesta*, fig. 6, *punctum*, fig. 7, p. 410, *maculata*, p. 413, *ocellata*, fig. 9, *pardalis*, fig. 10, *vitticollis*, fig. 11, p. 414, *grammica*, fig. 12, p. 415, *niveolineata*, figs. 14 & 15, *albolineata*, fig. 16, p. 416, *carmelita*, fig. 17, p. 417, *cinctipennis*, fig. 18, *croceicincta*, fig. 19, p. 420, *cinerea*, p. 421, *stigmata*, p. 422, *neglecta*, p. 423, pl. xix, fig. 21, *obesa*, p. 424. *E. griseo-nigra*, n. var. *riojana*; FAIRMAIRE, p. 252, Ann. Ent. Belg. xxxvi.

*E. desgodinsi*, Tibet, FRIVALDSZKY, p. 115, Term. füzetek, xv; *E. levettei*, Colorado, *duplicata*, Arizona, p. 172, CASEY, Ann. N. York Ac. vi; *E. atripilis*, p. 410, *cinereiventris*, p. 411, pl. xix, fig. 8, *evanescens*, *unicarcarata*, p. 412, *unilineata*, fig. 13, p. 415, *atricolor*, p. 419, *tripartita*, p. 421, fig. 20, *auricomans*, p. 424, fig. 22, *leucocoma*, p. 425, fig. 23, *candidata*, *emarginata*, fig. 24, p. 426, *singularis*, fig. 25, *compressicollis*, fig. 26, p. 427, CHAMPION, Biol. Centr. Am. Col. iv (2): n. spp.

*Eupompha fissiceps*, figured, Biol. Centr. Am. Col. iv (2), pl. xviii, fig. 13.

*Gnathium minimum*, figured, Biol. Centr. Am. Col. iv (2), pl. xvii, fig. 17.

*Gnathospasta*: *Cantharis labialis* referred to this; CHAMPION, p. 403, Biol. Centr. Am. Col. iv (2).

*Halosimus araxis*, Araxes Valley, REITTER, p. 63, Wien. ent. Z. xi, n. sp.

*Hapalus* and *Stenoria*, revision of the palæarctic species; PROCHAZKA, pp. 263-270, Wien. ent. Z. xi.

*H. binævus*, *reitteri*, Turkestan, PROCHAZKA, Wien. ent. Z. xi, p. 270, n. spp.

*Henous mexicanus*, figured and noticed; CHAMPION, Biol. Centr. Am. Col. iv (2) p. 369, pl. xvii, fig. 6.

- Hoplozonitis*, n. g., p. 228, for *H. mira*, n. sp., Queensland, p. 229 ; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- Horia auriculata*, N. and Centr. America, CHAMPION, p. 372, pl. xvii, figs. 9-9d, Biol. Centr. Am. Col. iv (2) n. sp.
- Lydus pilicollis, vulneratus*, p. 155, *impressicollis*, p. 156, Syria, FAIRMAIR Ann. Ent. Belg. xxxvi, n. spp.
- Lytta mæsta*, n. n. for *lugubris*, Pér., *designata*, n. n. for *albolineata*, Pér. ; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2).
- L. carneola*, p. 125, *amæna*, p. 126, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. spp.
- Macrobasis fumosa*, p. 395, pl. xviii, fig. 15, *purpurea*, p. 397, fig. 17, *diversicornis*, p. 399, fig. 19, *beckeri*, p. 400, fig. 20, *ochrea*, p. 401, fig. 23, *segmentata*, fig. 22, noticed and figured ; CHAMPION, Biol. Centr. Am. Col. iv (2).
- M. distorta*, p. 396, pl. xviii, fig. 16, *disparilis*, p. 398, fig. 18, *tenuicornis*, p. 400, fig. 21, *megacephala*, p. 401, fig. 24, Centr. America, CHAMPION, Biol. Centr. Am. Col. iv (2) : n. spp.
- Megetra cancellata* and var. described and figured ; CHAMPION, p. 370, pl. xvii, fig. 8.
- Meloë* : notes on young larva ; WEBER, Ber. Ver. Cassel, 1891, 1892, Abh. pp. 1-5, pl.
- M. meridianus*, S. W. Africa, PÉRINGUEY, p. 62, Tr. S. African Phil. Soc. vi (2), n. sp.
- Mylabris tenuipicta, posticata*, Syria, FAIRMAIRE, p. 154, Ann. Ent. Belg. xxxvi ; *M. hilaris*, p. 63, *M. (Ceroctis) blanda, aliena*, p. 64, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) : n. spp.
- Negalius*, n. g., near *Phodaga*, for *N. marmoratus*, n. sp., Texas ; CASEY, p. 175, Ann. N. York Ac. vi.
- Nemognatha cæruleipennis*, varr. figured and noticed, p. 374, pl. xvii, figs. 7, &c., *tarasca*, Dug., figured, fig. 4, redescribed, p. 378, *zonitoides*, fig. 15, *flava*, fig. 16, figured ; CHAMPION, Biol. Centr. Am. Col. iv (2).
- N. brevicollis*, pl. xvii, fig. 11, *foveifrons*, fig. 12, p. 376, *nigripes, ephippiata*, fig. 13, p. 377, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (2) : n. spp.
- Pyrota terminata*, p. 429, pl. xx, fig. 1, *punctata*, fig. 2, *mylabrina*, fig. 3, p. 430, *postica*, fig. 5, p. 431, *tenuicostalis*, p. 432, fig. 6, *divergata*, fig. 7, *decorata*, fig. 8, p. 433, *nobilis*, fig. 10, *quadrinervata*, fig. 11, p. 436, noticed and figured ; CHAMPION, Biol. Centr. Am. Col. iv (2).
- P. rugulipennis*, p. 431, pl. xx, fig. 4, *hirticollis*, fig. 9, *mariarum*, p. 435, Mexico, CHAMPION, Biol. Centr. Am. Col. iv (2) ; *P. punctata*, p. 173, *concinna*, p. 174, Texas, CASEY, Ann. N. York Ac. vi : n. spp.
- Tetraonyx sexguttatus*, variation noticed, p. 388, figured, pl. xviii, figs. 1-6, *batesi*, fig. 7, *bipartitus*, fig. 8, *sallæi*, fig. 9, *maculatus*, fig. 10, *frontalis*, fig. 11, figured ; Biol. Centr. Am. Col. iv (2).

- Zonabris*: regularity in variation of; ESCHERICH, Deutsche e. Z. 1892, pp. 113-130, pl. i. *Z. beckeri*, note on; BECKER, p. 69, Bull. Mosc. 1892.
- Z. chinensis*, *parvula*, China, FRIVALDSZKY, p. 114, Term. füzetek, xv, n. spp.
- Zonitis analis*, Ab., *thoracica*, Cast., *abeillei*, Bed., noticed, *ruficollis*, distinctive, and ♂ characters, p. 174, and of allies, p. 176; ESCHERICH, Wien. ent. Z. xi. *Z. posticalis*, n. n. for *apicalis*, Pér.; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2). *Z. flohri*, fig. 18, *nigromaculata*, fig. 23, *fulva*, fig. 24, figured, pl. xvii; Biol. Centr. Am. Col. iv (2). *Z. thoracica*, habits; VACHAL, p. xxiii, Bull. Soc. Ent. Fr. lxi.
- Z. gracilenta*, p. 156, *cæruleiceps*, p. 157, Syria, FAIRMAIRE, Ann. Ent. Belg. xxxvi; *Z. quadricollis*, p. clii, *scutellaris*, *sinuatipennis*, p. cliv, Turkestan, FAIRMAIRE, Bull. Soc. Ent. Fr. lxi; *Z. pulchella*, *proxima*, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2); *Z. helmsi*, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi; *Z. dunni*, *perforata*, Texas, CASEY, p. 170, Ann. N. York Ac. vi; *Z. tenebrosa*, p. 383, pl. xvii, fig. 19, *sanguinicollis*, p. 384, figs. 20 & 21, *lateritia*, p. 385, fig. 22, *megalops*, p. 386, fig. 26, Centr. America, CHAMPION, Biol. Centr. Am. Col. iv (2) : n. spp.

## CEDEMERIDÆ.

[Cf. ABEILLE (1), FAIRMAIRE (263, 264), GESTRO (334).]

- Ananca pallida*, Somaliland, GESTRO, p. 777, Ann. Mus. Genov. (2) xii; *A. sellata*, *luridimembris*, Argentine Rep., FAIRMAIRE, p. 253, Ann. Ent. Belg. xxxvi : n. spp.
- Asclera partitipennis*, Syria, FAIRMAIRE, p. 158, Ann. Ent. Belg. xxxvi, n. sp.
- Chrysanthia oralis*, p. 158, *chalcochroa*, p. 159, Syria, FAIRMAIRE, Ann. Ent. Belg. xxxvi, n. sp.
- Cedemera basipes*, Cyprus, p. 63, *lutescens*, Syria, p. 64, ABEILLE, Rev. d'Ent. xi; *C. apicipennis*, Syria, FAIRMAIRE, p. 157, Ann. Ent. Belg. xxxvi : n. spp.
- Mycetochares grandicollis*, *longior*, Syria, FAIRMAIRE, p. 149, Ann. Ent. Belg. xxxvi, n. spp.
- Nacerdes melanura*, distribution of; CHAMPION, Ent. M. M. xxviii, p. 23.
- Stenaxis parallela*, Syria, FAIRMAIRE, p. 158, Ann. Ent. Belg. xxxvi, n. sp.
- Xanthochroa foveata*, Syria, FAIRMAIRE, p. 157, Ann. Ent. Belg. xxxvi, n. sp.

## CURCULIONIDÆ.

- [Cf. AURIVILLIUS (25), BECKER (44), BLACKBURN (91, 93, 94, 95), CASEY (161, 162), DESBROCHERS (200, 201, 202, 205-209), DUVIVIER (230, 231), FAIRMAIRE (262, 270), FAUST (272-278, 402), FRIVALDSZKY (309, 310), GESTRO (334), GRILAT (364), GUILLEBEAU (375), 1892. [VOL. XXIX.]

- HELLER (394), PÉRINGUEY (672, 673), REITTER (725), REY (736), ROELOFS (772-776), ROST (780), SCHWARZ (805), SCUDDER (814), STIERLIN (898, 899, 900), TRYON (953), WEBSTER (991).]
- Summary of and remarks on N. American Tertiary *Rhynchophora*; SCUDDER (814).
- For many synonymical remarks on Palæarctic *Curculionidæ* see DESBROCHERS, Frelon, i, pp. 20-32.
- Abrachius*, n. g., near *Rhynchophorus*, p. 210, for *A. insularis*, n. sp., Aru Is., p. 211; ROELOFS, Notes Leyd. Mus. xiv.
- Acamptus echinus*, New York, CASEY, p. 445, Ann. N. York Ac. vi, n. sp.
- Acalles edoughensis*, *subglobatus*, p. 97, *7-costatus*, p. 98, *longus*, p. 99, Algeria, DESBROCHERS, Frelon, ii; *A. profusus*, Texas, CASEY, p. 446, Ann. N. York Ac. vi : n. spp.
- Acallestes*: characters; FAUST, p. 39, S. E. Z. liii.
- Agnesiotis blanda*, Australia, FAUST, p. 180, S. E. Z. liii, n. sp.
- Alaocyba*: systematic position is in *Erirrhini*, CASEY, p. 709, Ann. N. York Ac. vi.
- Alcides angulus*, *hypocritus*, &c., synonymical note; AURIVILLIUS, p. 218, N. Arch. Mus. Paris (3) iii.
- A. eruditus*, p. 312, *josephus*, p. 314, Congo, DUVIVIER, Ann. Ent. Belg. xxxvi; *A. affaber*, p. 218, *clathratus*, p. 219, Laos, *decemvittatus*, Cambodia, p. 220, AURIVILLIUS, N. Arch. Mus. Paris (3) iii; *A. richteri*, *pervicax*, p. 207, *reductus*, N. Guinea, *sellatus*, p. 208, *patruelis*, p. 209, Sumatra, FAUST, S. E. Z. liii : n. spp.
- Allomimus politus*, Texas, CASEY, p. 692, Ann. N. York Ac. vi, n. sp.
- Alolphus*, = (*Seidlitzia*, Desb.); FAUST, p. 51, S. E. Z. liii.
- Alycodes dubius*, Dietz, referred to *Dorytomus*; CASEY, p. 363, Ann. N. York Ac. vi.
- Ambates nobilis*, p. 40, *bipartitus*, *buqueti*, p. 41, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Ampelogypter longipennis*, N. America, CASEY, p. 549, Ann. N. York Ac. vi, n. sp.
- Anchoninae*, new group of *Molytides*, defined, p. 19, genera tabulated, pp. 19 & 20, species revised, pp. 21-60; FAUST, Deutsche e. Z. 1892.
- Anchonus panamensis*, Panama, *pudens*, Guadeloupe, p. 43, *laticollis*, Venezuela, p. 44, *fraterculus*, p. 45, *murcidus*, Costa Rica, *fraudulentus*, Mexico, p. 46, *intricatus*, Panama, *brevis*, Venezuela, p. 47, *mirus*, Guatemala, p. 48, *kirschi*, Colombia, *pedestris*, Mexico, p. 49, *tardus*, Fonteboa, p. 50, *morulus*, *femoralis*, Venezuela, p. 51, *confinis*, Honduras, *junix*, p. 52, *affaber*, p. 53, Colombia, *confidens*, Venezuela, p. 54, FAUST, Deutsche e. Z. 1892 : n. spp.
- Anephilus*, n. g., *Anchoninae*, p. 34, for *A. simoni*, p. 56, *longulus*, Venezuela, *guadulpianus*, Guadeloupe, p. 57, *claviger*, Venezuela, p. 58, n. spp., FAUST, Deutsche e. Z. 1892.

- Anthrenomus* : characters of the European species ; DESBROCHERS, Frelon, ii, pp. 106, &c. *A. ulmi*, *pedicularius*, synonymy ; DESBROCHERS, Échange, 1891, No. 76, p. 31. *A. musculus* and *signatus*, characters noticed ; HAMILTON, Canad. Ent. xxiv, p. 41.
- A. curtulus*, Mediterranean Region, DESBROCHERS, p. 112, Frelon, ii, n. sp.
- Anypotactus* : systematic position is in *Sitoninæ* ; FAUST, p. 21, S. E. Z. liii.
- A. sulcicollis*, Venezuela, FAUST, p. 21, S. E. Z. liii, n. sp.
- Apion semirufum*, Lyons, REY, Échange, 1888, No. 45, p. 4 ; *A. fallaciosum*, Algeria, *turkestanicum*, p. 107, *reitteri*, *soricinum*, p. 108, Turkestan, DESBROCHERS, Frelon, i ; *A. terræ-reginæ*, Queensland, BLACKBURN, p. 151, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Apiracalus cornutus*, n. var. *ebrius* ; FAUST, p. 189, S. E. Z. liii.
- Apoderus cardinalis*, n. n. for *miniatus*, Pér. ; PÉRINGUEY, p. 135, Tr. S. African Phil. Soc. vi (2).
- A. balteatus*, Transvaal, PÉRINGUEY, p. 129, Tr. S. African Phil. Soc. vi (2), n. sp.
- Apotrepus*, n. g., *Cossonini*, near *Caulophilus*, for *A. densicollis*, n. sp., Arizona ; CASEY, p. 695, Ann. N. York Ac. vi.
- Arachnopus fossulatus*, *stigmatus*, p. 223, *fenestratus*, p. 224, New Guinea, FAUST, S. E. Z. liii, n. spp.
- Aterpus raucus*, *abruptus*, Australia, BLACKBURN, p. 132, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Attactagenus cordicollis*, Portugal, p. 75, DESBROCHERS, Frelon, i, n. sp.
- Attelabus (Lamprolabus) biastatus*, Yunnan, FRIVALDSZKY, p. 117, Term. füzetek, xv, n. sp.
- Auletobius glaber*, *tibialis*, Venezuela, FAUST, p. 43, S. E. Z. liii, n. spp.
- Aulobaris dur*, Nebraska, CASEY, p. 546, Ann. N. York Ac. vi.
- Bagous frit*, *longitarsis*, &c., synonymy and characters ; FOWLER, Ent. M. M. xviii, p. 82.
- Balaninus* : characters of the European species ; DESBROCHERS, Frelon, ii, pp. 102-105.
- B. nivosus*, p. 205, *pluto*, p. 206, New Guinea, FAUST, S. E. Z. liii, n. spp.
- Barini* : the N. American genera tabulated and their classification discussed ; CASEY, pp. 460-469, Ann. N. York Ac. vi.
- Baridius* : revision of the European ; DESBROCHERS, Frelon, ii, pp. 19-69.
- B. phlomidis*, Sarepta, BECKER, p. 70, Bull. Mosc. 1892 (? n. sp.) ; *B. abeillei*, Syria, p. 44, *litigiosus*, Sarepta, p. 45, *insularis*, Corsica, p. 48, *tripagiatus*, p. 49, *stricticollis*, p. 54, Syria, *edoughensis*, p. 55, *corinthius* (Fairm.), p. 57, Algeria, *siciliensis*, Sicily, p. 59, *mecinoides*, Tunis, p. 62, *demaïsoni*, Egypt, p. 64, DESBROCHERS, Frelon, ii : n. spp.
- Barilepton famelicum*, p. 677, *falciger*, p. 678, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Barinus suffusus*, p. 670, *difficilis*, p. 671, *curticollis*, p. 673, N. America, CASEY, Ann. N. York Ac. vi, n. spp.

- Baris rectirostris*, Alexander Mts., FAUST, p. 63, Deutsche e. Z. 1892 ;  
*B. striolala*, p. 222, *strigosa*, p. 223, Cambodia, AURIVILLIUS, N. Arch. Mus. Paris (3) iii ; *B. ingens*, p. 476, *arizonica*, p. 478, *hispidula*, *gravida*, p. 479, *callida*, p. 481, *lubrica*, p. 482, *soluta*, p. 484, *floridensis*, p. 485, *vespertina*, p. 486, *oblongula*, p. 487, *dilatata*, p. 488, *cuneipennis*, p. 489, *aprica*, *dolosa*, p. 490, *zuniana*, p. 491, *opacula*, *porosicollis*, p. 492, *punctiventris*, p. 493, *brunneipes*, p. 495, *deformis*, p. 496, *futilis*, p. 497, *inconspicua*, p. 498, *subsimilis*, *socialis*, p. 499, *aperta*, p. 500, *abrupta*, *tenuestriata*, p. 501, *discipula*, p. 503, *scintillans*, p. 504, *aneomicans*, *hyperion*, p. 505, *vitreola*, p. 506, *ancilla*, *splendens*, p. 507, *exigua*, p. 508, N. America, CASEY, Ann. N. York Ac. vi : n. spp.
- Barynotus scutatus*, Finland, DESBROCHERS, p. 99, Frelon, i, n. sp.
- Barypeithes longicornis*, Abchasia, STIERLIN, p. 410, MT. Schw. ent. Ges. viii, n. sp.
- Blosyrus obliquatus*, Congo, DUVIVIER, p. 164, Ann. Ent. Belg. xxxvi, n. sp.
- Brachycerus incommodus*, *adustus*, p. 72, *viduatus*, p. 73, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), n. spp.
- Brachyderes rosti*, Caucasus, STIERLIN, p. 411, MT. Schw. ent. Ges. viii, n. sp.
- Brachyomus histrio*, *bicostatus*, p. 14, *sallei*, p. 15, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Brachysomus ornatus*, Bohemia, STIERLIN, p. 366, MT. Schw. ent. Ges. viii, n. spp.
- Buttikoferia*, n. g., *Ulomascides*, p. 136, for *B. liberiensis*, n. sp., W. Africa, p. 137, ROELOFS, Notes Leyd. Mus. xiv.
- Byctiscus paviéi*, Laos, AURIVILLIUS, p. 207, N. Arch. Mus. Paris (3) iii, n. sp.
- Cactophagus subnitens*, Arizona, CASEY, p. 685, Ann. N. York Ac. vi, n. sp.
- Calandra rugicollis*, Florida, CASEY, p. 687, Ann. N. York Ac. vi, n. sp.
- Calandrinus insignis*, p. 619, *obsoletus*, p. 620, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Camptorhinus cineritius*, Obock, FAIRMAIRE, p. 118, Rev. d'Ent. xi, n. sp.
- Canistes*, n. g., near *Acalles*, for *C. schusteri*, n. sp., Missouri ; CASEY, p. 447, Ann. N. York Ac. vi.
- Canoirix nigroclavatus*, Siam, AURIVILLIUS, p. 214, N. Arch. Mus. Paris (3) iii, n. sp.
- Carphonotus*, n. g., *Cossonini*, for *C. testaceus*, n. sp., Minnesota ; CASEY, p. 694, Ann. N. York Ac. vi.
- Catamonus robustus*, Kolbe, referred to *Heterostylus*, Faust ; FAUST, p. 47, S. E. Z. liii.
- Catapastus*, n. g., *Barini*, p. 664, for *C. diffusus*, n. sp., N. America, p. 665, and *Zygobaris conspersus*, Lec.
- Cataponus*, n. g., p. 48, for *C. curtulus*, Senegal, *C. (Grypnus) indicus*, p. 49, *bengalensis*, p. 50, E. India, n. spp. ; DESBROCHERS, Frelon, i.

- Centrinites*, n. g., near *Centrinus*, p. 615, for *C. strigicollis*, n. sp., N. America, p. 616 ; CASEY, Ann. N. York Ac. vi.
- Centrinogyna*, n. g., p. 620, for *Centrinus strigata*, Lec., and *C. procera*, n. sp., California, p. 622 ; CASEY, Ann. N. York Ac. vi.
- Centrinopus*, n. g., near *Centrinus*, p. 601, for *C. helvinus*, *alternatus*, n. spp., N. America, p. 602, CASEY, Ann. N. York Ac. vi.
- Centrinus tortuosus*, p. 580, *albotectus*, p. 582, *grisescens*, p. 583, *finitimus*, *hospes*, p. 585, *clarescens*, p. 586, *exulans*, p. 588, *acuminatus*, p. 590, *globifer*, p. 591, *nubecula*, *clientulus*, p. 594, *denticornis*, p. 597, *salebrosus*, p. 598, *pinguescens*, p. 599, *pulverulentus*, p. 600, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Centyres sinuatus*, Victoria, BLACKBURN, p. 129, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Cestophorus*, n. g., *Anchoninae*, p. 23, for *C. idoneus*, Colombia, p. 23, *simoni*, *guerini*, *mendosus*, *granulicollis*, *necessarius*, p. 24, Venezuela, *tribulus*, *infidus*, p. 25, Colombia : n. spp., and pp. 39-42 ; FAUST, Deutsche e. Z. 1892.
- Centorrhynchus balsaminae*, Berne, GUILLEBEAU, Échange i, No. 7, p. 3 ; *C. conformis*, Algeria, GRILAT, Échange, 1887, No. 32, p. 1 : n. spp.
- Chærorrhinus squalidus*, metamorphoses, XAMBEU, p. 38, Mœurs, ii.
- Chalcocybebus richteri*, New Guinea, FAUST, p. 205, S. E. Z. liii, n. sp.
- Chaleponotus*, n. g., near *Chalcodermus*, for *C. elusus*, n. sp., Indiana ; CASEY, p. 444, Ann. N. York Ac. vi.
- Cherrus inconspicuus*, p. 53, *longulus*, *maurulus*, p. 54, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi : n. spp.
- Chiloneus ottomanus*, Turkey, DESBROCHERS, p. 113, Frelon, i, n. sp.
- Chirozetus elaphus*, Sumatra, FAUST, p. 221, S. E. Z. liii, n. sp.
- Cimbus ovampoensis*, S. W. Africa, PÉRINGUEY, p. 67, Tr. S. African Phil. Soc. vi (2), n. sp.
- Cionus albopunctatus*, Laos, AURIVILLIUS, p. 218, N. Arch. Mus. Paris (3) iii, n. sp.
- Cleonidius*, n. subg. of *Cleonus*, p. 186, including the following n. spp. from N. America, *grandirostris*, p. 186, *bicarinatus*, *lecontei*, *lobigerinus*, p. 187, *kirbyi*, = (*vittatus*, Lec.), *circumductus*, *subcylindricus*, *graniferus*, p. 188 ; CASEY, Ann. N. York Ac. vi.
- Cleonus perlatus* and allies, synonymy ; DESBROCHERS, pp. 18-20, Frelon, i.
- C. (Bothynoderes) dissimilis*, S. W. Africa, PÉRINGUEY, p. 75, Tr. S. African Phil. Soc. vi (2), n. sp.
- Cneorhinus* of Europe and allies, revision of ; DESBROCHERS, Frelon, i, pp. 52, &c.
- Colobodes turbatus*, New Guinea, FAUST, p. 210, S. E. Z. liii, n. sp.
- Compsus virginalis*, *biimpressus*, p. 9, *simoni*, p. 10, *cresus*, p. 11, *spectabilis*, p. 12, *gemmeus*, p. 13, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Conoproctus* : distinctions of sexes in ; CASEY, p. 540, Ann. N. York Ac. vi.

- Conorhynchus dissimilatus*, Mén., = (*pistor*, Chev.); FAUST, p. 50, S. E. Z. liii.
- Conotrachelus compositus*, p. 439, *carinifer*, p. 440, *integer*, *duplex*, p. 441, *rotundus*, p. 442, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Corigetis humilis*, Somaliland, GESTRO, p. 783, Ann. Mus. Genov. (2) xii ; *C. pariei*, Siam, p. 210, *lineatus*, Laos, p. 211, AURIVILLIUS, N. Arch. Mus. Paris (3) iii ; *C. discolor*, *neglectus*, Sumatra, p. 190, *albovarius*, p. 191, Borneo, FAUST, S. E. Z. liii ; n. spp.
- Cossonides*: table of the European genera ; DESBROCHERS, Frelon, ii, pp. 72-82.
- Cotaster* referred to *Hylobiides* ; DESBROCHERS, p. 70, Frelon, ii.
- Cratopus aurostriatus*, Seychelles, FAIRMAIRE, p. cli, Bull. Soc. Ent. Fr. lxi, n. sp.
- Ctenolobus*, n. g., near *Lacordaireus*, for *C. squamiger*, n. sp., Marocco ; DESBROCHERS, Frelon, i (cf. FAUST, S. E. Z. liii, p. 52).
- Cubicorhynchus mussoni*, N. S. Wales ; BLACKBURN, p. 124, P. Linn. Soc. N.S.W. (2) vii.
- Cyclomaurus moraguesi*, p. 117, *boghariensis*, p. 118, Algeria, *vaulogeri*, p. 119, Tunis, DESBROCHERS, Frelon, i, n. spp.
- Cyclomias*, n. g. (no affinities given, probably *Otiiorhynchides*) for *C. mylacoides*, n. sp., Asia Minor ; DESBROCHERS, Frelon, i, p. 120.
- Cylindromus*, n. g., *Cyphicerinarum*, for *C. plumbeus*, n. sp., Cambodia ; AURIVILLIUS, p. 213, N. Arch. Mus. Paris (3) iii.
- Cylloderus josephus*, Congo, DUVIVIER, p. 58, Ann. Ent. Belg. xxxvi, n. sp.
- Cylloproctus*, n. g., *Sitoninarum*, p. 22, for *C. murinus*, Venezuela, *modestus*, Colombia, p. 23, *pyriformis*, *vehemens*, p. 24, *simoni*, p. 25, Venezuela, n. spp. ; FAUST, S. E. Z. liii.
- Cyphicerus erinaceus*, Sumatra, p. 191, *præcanus*, New Guinea, p. 192, FAUST, S. E. Z. liii ; *C. ? nigrofasciatus*, Laos ; AURIVILLIUS, p. 214, N. Arch. Mus. Paris (3) iii : n. spp.
- Dereodus cylindricollis*, p. 781, *elongatus*, p. 782, Somaliland, GESTRO, Ann. Mus. Genov. (2) xii, n. spp.
- Dermatodes albarius*, Engano, p. 185, *succinctus*, *aptus*, Sumatra, p. 186, FAUST, S. E. Z. liii, n. spp.
- Desmidophorus fasciatus*, Laos, AURIVILLIUS, p. 221, N. Arch. Mus. Paris (3) iii ; *D. dohrni*, Sumatra, p. 211, *prætor*, Almahera, p. 212, FAUST, S. E. Z. liii : n. spp.
- Desmoglyptus*, n. g. (*Barini*), for *Ampelogypter crenatus*, Lec. ; CASEY, p. 550, Ann. N. York Ac. vi.
- Desmoris*, Lec., merged in *Smicronyx* ; CASEY, p. 382, Ann. N. York Ac. vi.
- Dialeptopus approximatus*, W. Australia, BLACKBURN, p. 124, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Diaphorus*, n. g., *Cyphinarum*, for *D. morosus*, n. sp., Venezuela ; FAUST, p. 7, S. E. Z. liii.
- Diastrophilus*, n. g., *Hyperinarum*, p. 31, for *D. astutus*, n. sp., Venezuela, p. 32, FAUST, S. E. Z. liii.

- Dinocleus*, n. n. for *Centrocleonus*, Lec., nec Chev., p. 176, with *D. jacobinus*, p. 179, *denticollis*, p. 180, *furctus*, p. 181, *saginitus*, p. 182, *alborestitus*, p. 183, *wickhami*, p. 184, *densus*, p. 185, n. spp., N. America; CASEY, Ann. N. York Ac. vi.
- Dioprophorus*, n. g., *Anchonina*, p. 35, for *D. sharpi*, Guatemala, p. 58, *simplex*, Mexico, *fahræi*, Guatemala, p. 59, n. spp.; FAUST, Deutsche e. Z. 1892.
- Dorytomus inæqualis*, p. 364, *brevisetosus*, p. 365, *amplus*, *parvicollis*, p. 367, *hystriacula*, *filiolus*, p. 370, *nubeculinus*, p. 371, *cuneatulus*, *alaskanus*, p. 374, *marginatus*, *indifferens*, p. 375, *vagenotatus*, p. 376, *fusciceps*, p. 377, *marmoreus*, p. 381, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Dyscerus*, n. g., for *D. virgatus*, Sumatra, p. 198, *cruciatus*, Java, p. 199, *linnei*, Sumatra, p. 200, n. spp.; FAUST, S. E. Z. liii.
- Dyschænum*, position is *Erirhinides*; BLACKBURN, p. 56, Tr. R. Soc. S. Austr. xv.
- Dysostines glaber*, p. 127, *advena*, p. 128, Victoria, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Edmundia sericea*, Somaliland, GESTRO, p. 780, Ann. Mus. Genov. (2) xii, n. sp.
- Elleschus angustatus*, Dietz, referred to *Dorytomus*; CASEY, p. 363, Ann. N. York Ac. vi.
- Ellimenistes ostentatus*, S. W. Africa, PÉRINGUEY, p. 70, Tr. S. African Phil. Soc. vi (2), n. sp.
- Elytrodon baudii*, Sicily, STIERLIN, p. 363, MT. Schw. ent. Ges. viii; *E. baudii*, Sicily, STIERLIN, p. 156, Nat. Sicil. xi; *E. impressifrons*, p. 115, *carinifrons*, p. 116, Algeria, DESBROCHERS, Frelon, i : n. spp.
- Emplesis monticola*, p. 142, *ocellata*, p. 143, Victoria, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Enicoderus*, n. g., near *Siderodactylus*, for *E. thoracicus*, n. sp., Namaqualand; PÉRINGUEY, p. 127, Tr. S. African Phil. Soc. vi.
- Epistrophus cristulatus*, Venezuela, FAUST, p. 32, S. E. Z. liii, n. sp.
- Eremnini*: notes on Australian; BLACKBURN, p. 229, Tr. R. Soc. S. Austr. xv.
- Eremotes heydeni*, Turkestan, FAUST, p. 104, Deutsche e. Z. 1892, n. sp.
- Eristus*, n. g. (aberrant *Erirhinidae*), p. 148, for *E. setosus*, *bicolor*, n. spp., Victoria, p. 149, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.
- Esmelina australis*, N. S. Wales, BLACKBURN, p. 123, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Essolithna seriata*, Australia, BLACKBURN, p. 50, Tr. R. Soc. S. Austr. xvi, n. sp.
- Eugithopus nobilis*, Borneo, ROELOFS, p. 7, Notes Leyd. Mus. xiv, n. sp.
- Eugnamptus bifenestratus*, *apicalis*, Venezuela, FAUST, S. E. Z. liii, p. 42, n. spp.
- Eunyssobia*, n. n. for *Euchætes*, Lec., with discussion of characters; CASEY, p. 679, Ann. N. York Ac. vi.
- Eupholus compositus*, New Guinea, FAUST, p. 188, S. E. Z. liii, n. sp.

- Evas everardensis*, Australia, BLACKBURN, p. 47, Tr. R. Soc. S. Austr. xvi, n. sp.
- Exophthalmida*, n. g., *Cyphinarum*, p. 187, for *E. glauca*, n. sp., Admiralty and Solomon Is., p. 188; FAUST, S. E. Z. liii.
- Foucattia karamani*, Dalmatia, STIERLIN, p. 364, MT. Schw. ent. Ges. viii; *F. conicicollis*, Ordubad, REITTER, p. 153, Wien. ent. Z. xi : n. spp.
- Geosomus*, n. g., *Pantopeinarum*, for *G. macleayi*, n. sp., Gawler; FAUST, p. 179, S. E. Z. liii.
- Gerynassa affinis*, p. 144, *minor*, p. 145, Victoria, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Glyptobaris*, n. g. (*Barini*), for *Onychobaris rugicollis*, Lec.; CASEY, p. 520, Ann. N. York Ac. vi.
- Gonipterus rufus*, Victoria, BLACKBURN, p. 130, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Grypnus*, n. subg. of *Cataponus* (*q.v.*); DESBROCHERS, p. 49, Frelon, i.
- Gymnetron nigrirtarse*, p. 93, *hircinum*, p. 95, *canescens*, p. 96, Algeria, *furcatum*, p. 94, *aper*, p. 95, *hirsutum*, p. 96, Syria, DESBROCHERS, Frelon, ii, n. spp.
- Hadromerus scabricollis*, Venezuela, FAUST, p. 1, S. E. Z. liii, n. sp.
- Haplorhynchus valdani*, Roel., = (*Cyrtopisthen rubicundum*, Auriv.); ROELOFS, p. 36, Notes Leyd. Mus. xiv.
- Heilipus? mediator*, Venezuela, FAUST, p. 38, S. E. Z. liii, n. sp.
- Hesperobaris*, n. g., *Barini*, p. 559, for *H. suavis*, n. sp., Texas, p. 560; CASEY, Ann. N. York Ac. vi.
- Himatum nigrifulum*, Florida, CASEY, p. 691, Ann. N. York. Ac. vi, n. sp.
- Hipporrhinus ovampoensis*, S. W. Africa, PÉRINGUEY, p. 75, Tr. S. African Phil. Soc. vi (2), n. sp.
- Hylobiini*: tabulation of genera; FAUST, pp. 201–204, S. E. Z. liii.
- Hyphantus maculifer*, p. 16, *distinguendus*, p. 17, *uncinatus*, *dehiscens*, p. 18, Brazil, DESBROCHERS, Frelon, ii, n. spp.
- Hypomeces atomarius*, Java, p. 47, *laniger*, Malay Arch., p. 48, DESBROCHERS, Frelon, i, n. spp.
- Hypsonotus umbilicatus*, Venezuela, FAUST, p. 28, S. E. Z. liii, n. sp.
- Idiostethus*, n. g. *Barini*, p. 649, for *I. ellipsoideus*, *dispersus*, p. 652, n. spp., N. America, *Camptorhinus tubulatus*, Say, and *Zygobaris subcalvus*, Lec.; CASEY, Ann. N. York Ac. vi.
- Ipthimorhinus*, n. g., near *Rhynchophorus*, p. 207, for *I. australasiae*, n. sp., Queensland, p. 208; ROELOFS, Notes Leyd. Mus. xiv.
- Ithyporus nigrosignatus*, Congo, DUVIVIER, p. 316, Ann. Ent. Belg. xxxvi, n. sp.
- Larinus numidicus*, p. 89, *villosicollis*, p. 91, Algeria, *villosiventris*, Sicily, p. 90, *distinguendus*, Syria, p. 92, DESBROCHERS, Frelon, ii; *L. brevisculus*, Asia Minor, DESBROCHERS, p. 12, t. c. : n. spp.
- Leprosomus sulcicollis*, p. 21, *schonherri*, *contractus*, *vicarius*, p. 22, Colombia, FAUST, Deutsche e. Z. 1892, n. spp.
- Leptopsini*: value of generic characters discussed; BLACKBURN, p. 49, Tr. R. Soc. S. Austr. xvi.

- Leptops biordinatus*, p. 55, *raucus*, p. 56, *gravis*, p. 57, *areolatus*, *planicollis*, p. 58, *interioris*, p. 59, *contrarius*, *sulcicollis*, p. 60, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi, n. spp.
- Leptostylus*, n. g., near *Megalostylus*, for *Cyphus juvenis*, Ol., and *L. suturalis*, n. sp., Venezuela, FAUST, p. 8, S. E. Z. liii.
- Leucodrusus marice*, characters of ; FAUST, p. 45, S. E. Z. liii.
- Linonotus*, n. g., for *Centrinus distinctus*, Boh. ; CASEY, p. 603, Ann. N. York Ac. vi.
- Limnobaris brachata*, p. 627, *limbifer*, *blandita*, p. 628, *tabida*, p. 629, *deplanata*, p. 630, *denudata*, p. 632, *planiuscula*, p. 633, *oblita*, p. 634, *seclusa*, p. 635, *ebena*, p. 638, *puteifer*, p. 639, *concurrens*, p. 640, *fratercula*, *seminitens*, p. 642, *nitidissima*, p. 644, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Liophleus paulinoi*, Portugal, DESBROCHERS, p. 88, Frelon, i, n. sp.
- Licis*: table of the food-plants of N. American ; WEBSTER, p. 340, P. E. Soc. Wash. ii. *L. fascicularis*, *decoloratus*, *sturmi*, synonymical note, p. 44; *turkestanus*, *acicularis*, *cinerascens*, noticed, p. 46, FAUST, S. E. Z. liii.
- L. fecundus*, p. 61, *imitator*, p. 62, Alexander Mts., *christophi*, Caucasus, p. 63, FAUST, Deutsche e. Z. 1892 ; *L. albopictus*, *farinifer*, Araxes Valley, REITTER, p. 64, Wien. ent. Z. xi ; *L. itimbirensis*, Congo, DUVIVIER, p. 164, Ann. Ent. Belg. xxxvi ; *L. amplexus*, p. 199, *oregonus*, p. 200, *eximius*, *tenellus*, p. 201, *pygmaeus*, p. 203, *soror*, *laramiensis*, p. 204, *sobrinus*, p. 205, *semivittatus*, p. 207, *jülichii*, p. 208, *luculentus*, p. 209, *nitidulus*, p. 210, *obesulus*, p. 211, *sexualis*, p. 212, N. America, CASEY, Ann. N. York Ac. vi : n. spp.
- Lobotrachelus*, = (*Celosternus*, Motsch.) ; FAUST, p. 47, S. E. Z. liii.
- Madarellus*, n. g., for *Rhynchænus undulatus*, Say ; CASEY, p. 540, Ann. N. York Ac. vi.
- Madarus*, composition of, and sexual distinctions in ; CASEY, p. 540, Ann. N. York Ac. vi.
- Mandalotus*, Er., = (*Dysostines*, Pasc.) ; BLACKBURN, p. 229, Tr. R. Soc. S. Austr. xv.
- Mechistocerus*, Fauv., = (*Berosiris*, Pasc.) ; FAUST, p. 46, S. E. Z. liii.
- M. pascoei*, Sumatra, FAUST, p. 213, S. E. Z. liii, n. sp.
- Mecysmoderes*, = (*Caeliosomus*, Motsch.) ; FAUST, p. 47, S. E. Z. liii.
- M. rhomboidalis*, Cambodia, AURIVILLIUS, p. 221, N. Arch. Mus. Paris (3) iii, n. sp.
- Medicasta lugubris*, Victoria, BLACKBURN, p. 131, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Meira baudii*, Rome, STIERLIN, p. 362, MT. Schw. ent. Ges. viii ; *M. subplana*, Algeria, *sicula*, Sicily, p. 4, *subconiceps*, Algeria, p. 5, *tunicensis*, Tunis, p. 6, DESBROCHERS, Frelon, ii : n. spp.
- Menetypus opalescens*, *kirschi*, p. 2, *modestus*, p. 3, *robustus*, p. 4, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Meriphus humeralis*, N. S. Wales, BLACKBURN, p. 146, P. Linn. Soc. N.S.W. (2) vii, n. sp.

- Metacynops calabrus*, Sicily, STIERLIN, p. 361, MT. Schw. ent. Ges. viii, n. sp.
- Metallites damryi*, Sardinia, DESBROCHERS, p. 2, Frelon, ii, n. sp.
- Metopotoma*, n. g., *Cossonini*, near *Gononotus*, p. 689, for *M. repens*, n. sp., California, p. 690; CASEY, Ann. N. York Ac. vi.
- Microbaris*, n. g., *Barini*, p. 560, for *M. galvestonica*, n. sp., Texas, p. 561; CASEY, Ann. N. York Ac. vi.
- Micromastus*, Lec., characters amended; CASEY, p. 446, Ann. N. York Ac. vi.
- Minyops bertolinii*, Rome, STIERLIN, p. 364, MT. Schw. ent. Ges. viii, n. sp.
- Mitophorus globosus*, p. 778, *humerosus*, p. 779, Somaliland, GESTRO, Ann. Mus. Genov. (2) xii, n. sp.
- Myllocerus benignus*, Askhabad, FAUST, p. 60, Deutsche e. Z. 1892; *M. debilis*, *sparsutus*, Obock, FAIRMAIRE, p. 117, Rev. d'Ent. xi: n. spp.
- Myosita munda*, *crucigera*, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Nauphaeus simius*, Philippines, FAUST, p. 222, S. E. Z. liii, n. sp.
- Nemosinus*, n. g., near *Styphloderes*, for *Anchonus angulicollis*, Suff.; FAUST, p. 18, Deutsche e. Z. 1892.
- Neotocerus*, n. g., near *Sophrorhinus*, for *N. fausti*, n. sp., Congo; DUUVIER, Ann. Ent. Belg. xxxvi, p. 165.
- Nicentrus*, n. g., p. 608, for some species of *Centrinus* and *N. ingenuus*, p. 610, *scitulus*, p. 611, *effetus*, *contractus*, p. 613, n. spp., N. America; CASEY, Ann. N. York Ac. vi.
- Notaris dalmatina*, Dalmatia, STIERLIN, p. 365, MT. Schw. ent. Ges. viii, n. sp.
- Nyssonotus*, n. g., *Cossonini*, for *N. seriatus*, n. sp., Texas; CASEY, p. 701, Ann. N. York Ac. vi.
- Oligolochus*, n. g., for *Zygobaris*? *convexus*, Lec.; CASEY, p. 648, Ann. N. York Ac. vi.
- Omoionotus*: generic characters; FAUST, p. 29, S. E. Z. liii.
- O. jekeli*, p. 29, *lacordairei*, p. 30, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Omotemnus rhinoceros*, ♀ noticed; AURIVILLIUS, p. 223, N. Arch. Mus. Paris (3) iii.
- Onychobaris corrossa*, *depressa*, p. 525, *millepora*, p. 526, *austera*, p. 527, *insidiosa*, p. 528, *arguta*, p. 529, *audax*, *stictica*, p. 530, *mystica*, p. 531, *egena*, p. 532, *ambigua*, *pauperella*, p. 533, *remota*, p. 535, *molesta*, p. 536, *illex*, p. 537, *diluta*, p. 538, *porcata*, p. 539, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Onychogymnus ursulus*, Madagascar, p. 50, *O.?* *ocellatus*, Gaboon, p. 51, ROELOFS, Notes Leyd. Mus. xiv, n. spp.
- Oomorphidius*, n. g., *Barini*, for *Microcholus erasus* and *levicollis*, Lec.; CASEY, p. 659, Ann. N. York Ac. vi.
- Oopterinus*, n. g., for *Otidoccephalus perforatus*, Horn; CASEY, p. 438, Ann. N. York Ac. vi.
- Opetiopteryx*, n. g., *Amycterinae*, p. 125, for *O. frigida*, n. sp., Victoria, p. 126, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii.

- Orchestes fagi*, metamorphoses ; PISSOT, p. 91, Le Nat. 1892.
- Orthorhinus albosparsus*, New Guinea, FAUST, p. 204, S. E. Z. liii ; *O. bicolor*, Victoria, BLACKBURN, p. 139, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Orthoris cylindrifer*, Arizona, CASEY, p. 571, Ann. N. York Ac. vi, n. sp.
- Otidocephalus nivosus*, p. 429, *insignis*, *estriatus*, p. 430, *egregius*, p. 431, *floridanus*, p. 433, *speculator*, p. 434, *ruficornis*, p. 435, *cavirostris*, p. 437, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Otiorrhynchus proreus* belongs to subg. *Arammichus* ; REITTER, p. 26, Wien. ent. Z. xi. *O. valachie*, distinctive characters ; FRIVALDSZKY, p. 132, Term. füzetek, xv.
- O. dilatipes*, France, GUILLEBEAU, Échange, i, No. 8, p. 2 ; *O. nevadensis*, Spain, p. 357, *latifrons*, Abruzzi, p. 358, *O. (Tournieria) brevipennis*, Greece, *thoracicus*, Pennine Alps, p. 359, STIERLIN, MT. Schw. ent. Ges. viii ; *O. kelecsenyii*, Hungary, FRIVALDSZKY, p. 132, Term. füzetek, xv ; *O. abchasicus*, Caucasus, ROST, p. 402, Deutsche e. Z. 1892 ; *O. (Tournieria) hystericus*, Alexander Mts., FAUST, p. 61, Deutsche e. Z. 1892 ; *O. caroli*, *gracilicornis*, p. 408, *O. (Tournieria) subparallelus*, p. 409, Caucasus, *bugnioni*, Tunis, p. 410, STIERLIN, MT. Schw. ent. Ges. viii : n. spp.
- Oxyopisthen vittatum*, and *linea-alba*, Thoms., noticed, referred to *Ichthyopisthen*, p. 34, also *clavatum*, Roel., = (*rufo-clavatum*, Auriv.), p. 35 ; ROELOFS, Notes Leyd. Mus. xiv.
- Pachyrhynchus rubro- verrucatus*, N. Guinea, TRYON (1953), n. sp.
- Pachytychius simillimus*, Lalla-Marghnia, *smyrnensis*, Smyrna, *letourneuxi*, Ramleh, *abeillei*, Jerusalem, *siculus*, Sicily, DESBROCHERS, p. 30, Frelon, i, n. spp.
- Pagiophloeus*, n. g., *Hylobiinorum*, p. 195, type *Aclees pacca*, Fab., with *P. javanicus*, p. 196, *rühli*, p. 197, n. spp., Java ; FAUST, S. E. Z. liii.
- Pandeleiteius angustirostris*, Venezuela, FAUST, p. 5, S. E. Z. liii, n. sp.
- Pantorhytes*, n. g., *Pachyrhynchinarum*, for *Pachyrhynchus chrysomelas*, Montr., and *P. batesi*, n. sp., New Guinea ; FAUST, p. 193, S. E. Z. liii.
- Parameleus*, n. g., *Hylobiinorum*, p. 33, for *P. stevensi*, p. 34, *insignatus*, *neglectus*, p. 35, n. spp., Venezuela ; FAUST, S. E. Z. liii.
- Paraphilernus*, n. g., for *Philernus bilunulatus*, Db.; DESBROCHERS, p. 71, Frelon, ii.
- Paraplinthus*, n. g., for *Plinthus carinatus*, Boh.; FAUST, p. 49, S. E. Z. liii.
- Parascytopus baudii*, Calabria, STIERLIN, p. 361, MT. Schw. ent. Ges. viii, n. sp.
- Paratasis viridixenea*, Java, HELLER, p. 269, Notes Leyd. Mus. xiv, n. sp.
- Pelororhinus proximus*, p. 134, *crassus*, p. 135, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Pentarthrinus*, n. g., *Cossonini*, p. 698, for *Amaurorhinus nitens*, Horn, and *P. parvicollis*, p. 699, *piceus*, *atrolucens*, p. 700, n. spp., N. America ; CASEY, Ann. N. York Ac. vi.

- Pephricus umbratus*, W. Australia, p. 231, *squalidus*, S. Australia, p. 232, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Peritelus lostice*, Sardinia, DESBROCHERS, Frelon, ii, p. 88; *P. vitalei*, Sicily, DESBROCHERS, p. 7, t. c. : n. spp.
- Phacepholis albaria*, Venezuela, FAUST, p. 6, S. E. Z. liii, n. sp.
- Phænoderus*, n. g., near *Siderodactylus*, for *P. distinctus*, n. sp., S. W. Africa; PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 69.
- Phyllobius brevis*, Gyll., = (*emgei*, Stierl.); REITTER, p. 239, Wien. ent. Z. xi.
- P. siculus*, Sicily, STIERLIN, p. 360, MT. Schw. ent. Ges. viii; *P. siculus*, Sicily, BAUDI, p. 156, Nat. Sicil. xi; *P. delagrangei* (no locality), DESBROCHERS, p. 3, Frelon, ii : n. spp.
- Phyrdenus bullatus*, Arizona, CASEY, p. 458, Ann. N. York Ac. vi, n. sp.
- Phytobius griseomicans*, N. America, SCHWARZ, p. 165, P. E. Soc. Wash. ii, n. sp.
- Phytoscaphus*, = (*Rhyppochromus*, Motsch.); FAUST, p. 47, S. E. Z. liii.
- P. interstitialis*, p. 215, *P. ? setosus*, p. 216, Laos, AURIVILLIUS, N. Arch. Mus. Paris (3) iii; *P. leporinus*, Sumatra, FAUST, p. 193, S. E. Z. liii : n. spp.
- Piazomias limbatellus*, p. 66, *sumptuosus*, p. 67, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2); *P. desgodinsi*, p. 115, Tibet, *fausti*, p. 116, *trapezicollis*, p. 117, China, FRIVALDSZKY, Term. füzetek, xv : n. spp.
- Platyopisthen*, n. g., for *Stenophida* (sub. *Oxyopisthen*) *suturale*, Roel.; ROELOFS, p. 134, Notes Leyd. Mus. xiv.
- Plesiobaris*, n. g., p. 509, for *P. signatipes*, p. 510, *œmula*, p. 512, *disjuncta*, p. 513, n. spp., N. America, and including *Baridius T-signum*, Boh., and *Pseudobaris albilatus*, Lec.; CASEY, Ann. N. York Ac. vi.
- Polydrusus pulchellus*, Dalmatia, STIERLIN, p. 363, MT. Schw. ent. Ges. viii; *P. delagrangei*, Asia Minor, DESBROCHERS, p. 1, Frelon, ii : n. spp.
- Polymicrus*, n. g., *Hyllobiinum*, for *P. tessellatus*, p. 36, *tuitus*, p. 37, n. spp., Venezuela; FAUST, S. E. Z. liii.
- Polyphrades tumidulus*, p. 51, *rugulosus*, p. 52, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xvi, n. spp.
- Promecops luteus*, p. 25, *jucundus*, p. 26, *olivieri*, p. 27, *stimulans*, p. 28, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Promecotarsus*, n. g., near *Smicronyx*, p. 408, for *P. maritimus*, p. 409, *densus*, *fumatus*, p. 410, n. spp., N. America; CASEY, Ann. N. York Ac. vi.
- Proxyrodes*, n. g. (*Otiiorhynchini*, near *Proxyrus*), for *P. maculatus*, n. sp., Australia; BLACKBURN, p. 48, Tr. R. Soc. S. Austr. xvi.
- Prypnus* (?) *squamosus*, N. S. Wales, BLACKBURN, p. 115, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Pseudaclees*, n. g., for *Hyllobius fasciatus*, Pasc.; FAUST, S. E. Z. liii, p. 50.

- Pseudanchonus*, n. g., *Heilipinarum*, for *P. æquatorius*, n. sp., Ecuador ; FAUST, p. 203, S. E. Z. liii.
- Pseudobaris luctuosa*, Florida, *discreta*, Texas, p. 554, *fausta*, Arizona, p. 555, *lugubris*, p. 557, *cæolata*, p. 559, New Mexico, CASEY, Ann. N. York Ac. vi, n. spp.
- Pseudobarynotus*, n. g., for *laticeps*, Desb. ; DESBROCHERS, p. 102, Frelon, i (cf. FAUST, S. E. Z. liii, p. 52).
- Pseudocholus bivittatus*, p. 224, *lacordairei*, p. 225, New Guinea, *viridimicans*, Amboina, p. 226, FAUST, S. E. Z. liii, n. spp.
- Pseudopentarthrum robustum*, *simplex*, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Psomus*, n. g., *Zygopini*, near *Acoptus*, for *P. politus*, n. sp., Indiana ; CASEY, p. 458, Ann. N. York Ac. vi.
- Ptochus interruptus*, Ephesus, p. 122, *vagepictus*, Peloponnesus, p. 123, DESBROCHERS, Frelon, i, n. spp.
- Pycnobaris*, n. g., p. 514, for *Baris pruinosa*, Lec., and *P. squamotecta*, Texas, n. sp., p. 515 ; CASEY, Ann. N. York Ac. vi.
- Raymondia* referred to *Erirehinides* ; DESBROCHERS, p. 70, Frelon, ii.
- Rhadinomerus*, n. g., for *Mechistocerus* (? *Berosiris*) *mastersi*, Pasc. ; FAUST, p. 46, S. E. Z. liii.
- R. vigilans*, p. 215, *mæstus*, *solidus*, p. 216, *simplex*, p. 217, Sumatra, FAUST, S. E. Z. liii, n. spp.
- Rhamphocolus*, n. g., near *Rhyncolus*, p. 702, for *R. tenuis*, n. sp., Texas, p. 703 ; CASEY, Ann. N. York Ac. vi.
- Rhinaria tibialis*, p. 136, *debilis*, p. 138, Victoria, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Rhinochenus stigma*, metamorphoses ; DECAUX, p. 202, Le Nat. 1892.
- Rhinochrosis*, n. g., near *Mylacus*, p. 121, for *R. subglobatus*, n. sp., Tangier, p. 122, DESBROCHERS, Frelon, i.
- Rhynchites interpunctatus*, Steph., distinguished from *alliarie* ; THOMSON, p. 1773, Opusc. ent. xvi. *R. seminiger*, characters of ; REITTER, p. 186, Wien. ent. Z. xi.
- Rhyncholus syriacus*, Syria, p. 80, *dalmatinus*, Dalmatia, p. 81, DESBROCHERS, Frelon, ii ; *R. pallens*, p. 703, *spretus*, *dilatatus*, p. 704, *relictus*, p. 705, *nimius*, p. 706, *discors*, p. 707, N. America, CASEY, Ann. N. York Ac. vi : n. spp.
- Rhyparonotus*, n. g., *Anchonine*, p. 33, for *R. mendax*, p. 54, *jekeli*, p. 55, Venezuela, n. spp. ; FAUST, Deutsche e. Z. 1892.
- Rhytirhinus confusus*, Greece, p. 8, *carthagenensis*, Spain, p. 9, *varipes*, p. 10, *monstruosus*, p. 11, Algeria, DESBROCHERS, Frelon, ii, n. spp.
- Ryssematus ovalis*, Texas, CASEY, p. 443, Ann. N. York Ac. vi, n. sp.
- Schizonotus*, n. g., *Erirehinini*, p. 708, for *S. cæcus*, n. sp., California, p. 709 ; CASEY, Ann. N. York Ac. vi.
- Sciaphilus subnudus*, Greece, DESBROCHERS, p. 114, Frelon, i, n. sp.
- Seidlitzia*, n. g., for *Liophleus maroccanus*, Fairm. ; DESBROCHERS, p. 93, Frelon, i (cf. *Alophus*, *suprà*).

- Sepiomus*, n. g., *Cyphicerinarum*, p. 211, type *Episomus parallelus*, Chev., with *S. frontalis*, Cambodia, p. 212, *tuberculatus*, Battambang, p. 213 ; AURIVILLIUS, N. Arch. Mus. Paris (3) iii.
- Silerodactylus elegans*, *egregius* (*simplicipes*, olim.), p. 68, *opalinus*, p. 69, S. W. Africa ; PÉRINGUEY, Tr. S. African Phil. Soc. vi (2).
- Simophorus*, n. g., *Phyllobiinarum*, for *S. pustulosus*, n. sp., Venezuela ; FAUST, S. E. Z. liii, p. 19.
- Sipalus auricilli*, Congo, DUVIVIER, p. 166, Ann. Ent. Belg. xxxvi, n. sp.
- Smicronyx lineolatus*, p. 385, *quadrifer*, p. 388, *profusus*, p. 389, *intricatus*, p. 390, *imbricatus*, p. 391, *silaceus*, p. 392, *spurcus*, p. 393, *sparsus*, p. 394, *pleuralis*, p. 395, *connivens*, p. 398, *fiducialis*, p. 399, *congestus*, p. 401, *sagittatus*, p. 402, *sculpticollis*, *instabilis*, p. 403, *apionides*, *perpusillus*, p. 405, *defricans*, p. 406, *gibbistrostris*, *squalidus*, p. 407, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Sophonopterus*, n. g., near *Mechistocerus*, for *S. humeralis*, n. sp., Sumatra ; FAUST, p. 214, S. E. Z. liii.
- Sphenocorynus scutellatus*, Sumatra, FAUST, p. 227, S. E. Z. liii, n. sp.
- Sphenophorus cinerascens*, Motsch., referred to *Trochorhopalus* ; FAUST, p. 50, S. E. Z. liii.
- Stenanylus*, n. g., *Cossonini*, near *Rhyncolus*, for *S. colomboi*, n. sp., Florida ; CASEY, p. 694, Ann. N. York Ac. vi.
- Stenophida* (sub *Oxyopisthen*) *suturale*, Roel., = (*trilineata*, Auriv.) ; ROELOFS, p. 36, Notes Leyd. Mus. xiv.
- Stethobaris incompta*, p. 655, *congermana*, *egregia*, p. 657, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Stictobaris*, n. g. (*Barini*), p. 516, for *S. pimalis*, p. 517, *subacuta*, p. 518, n. spp., N. America, and *Onychobaris cribrata*, Lec. ; CASEY, Ann. N. York Ac. vi.
- Stigmatotrachelus plucidus*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) p. 70, n. sp.
- Strophomorphus uniformis*, Syria, DESBROCHERS, p. 117, Frelon, i, n. sp.
- Styphlus ursus*, Greece, DESBROCHERS, p. 89, Frelon, ii, n. sp.
- Sympiezomias basalis*, p. 207, Siam, *setosus*, Laos, p. 208, AURIVILLIUS, N. Arch. Mus. Paris (3) iii, n. spp.
- Synthlibonotus* : systematic position discussed, FAUST, p. 17, S. E. Z. liii.
- S. rufipes*, p. 17, *scapha*, *mucronotus*, p. 18, Venezuela, FAUST, S. E. Z. liii, n. spp.
- Tanymecus* and allies, characters tabulated ; FAUST, S. E. Z. liii, p. 51.
- T. (Esamus) piliscapus*, Cambodia, AURIVILLIUS, p. 208, N. Arch. Mus. Paris (3) iii, n. sp.
- Temnoschoita eruditus*, *basipennis*, Congo, DUVIVIER, Ann. Ent. Belg. xxxvi, n. spp.
- Tentegia*, Pasc., characters and position ; FAUST, p. 181, S. E. Z. liii.
- T. basalis*, p. 181, *ingrata*, p. 182, *sana*, p. 183, Australia, FAUST, S. E. Z. liii, n. spp.
- Thylacites subvittatus*, Spain, p. 110, *cretaceus*, p. 111, *subahennus*, p. 112, Algeria, DESBROCHERS, Frelon, i, n. spp.

- Thysanocnemis graphica*, p. 425, *squamiger*, *horridula*, p. 426, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Timus*, n. g., near *Siderodactylus*, for *T. simplex*, p. 128, *planiceps*, p. 129, n. spp., S. Africa; PÉRINGUEY, Tr. S. African Phil. Soc. vi (2).
- Titinia* and *Idaspora* discussed; BLACKBURN, p. 117, P. Linn. Soc. N.S.W. (2) vii.
- T. brevicollis*, p. 118, *lata*, *T. (Idaspora?) eremita*, p. 119, *bicolor*, p. 120, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Trachyphloxus scabriculus* and *laticollis* are the sexes of one species; GUILLEBEAU, p. cclv, Bull. Soc. Ent. Fr. lxi.
- Tragopus fossulatus*, Celebes, *brevis*, p. 218, *sulcifrons*, p. 219, Java, FAUST, S. E. Z. liii, n. spp.
- Trepobaris*, n. g., for *T. elongata*, n. sp., Texas; CASEY, p. 519, Ann. N. York Ac. vi.
- Trichobaris insolita*, p. 565, *compacta*, p. 566, *cylindrica*, p. 567, CASEY, Ann. N. York Ac. vi, n. spp.
- Trigonosomus*, n. g., near *Rhinochenus*, for *T. draco*, n. sp., New Guinea; FAUST, p. 220, S. E. Z. liii.
- Trochorhopalus sumatranus*, Sumatra, FAUST, p. 227, S. E. Z. liii, n. sp.
- Tychius longierus*, p. 99, *parallelogrammus*, p. 100, Algeria, DESBROCHERS, Frelon, ii; *T. soltauui*, p. 416, *lamellosus*, p. 418, *prolixus*, p. 419, *variegatus*, p. 420, *simplex*, *sibinoides*, p. 421, *mica*, p. 422, *subfasciatus*, p. 423, *hispidus*, p. 424, N. America, CASEY, Ann. N. York Ac. vi : n. spp.
- Tyloderma angustula*, p. 451, *contusa*, p. 452, *rufescens*, p. 454, *subpubescens*, p. 455, N. America, CASEY, Ann. N. York Ac. vi, n. spp.
- Xanthochelus miscellaneus*, Lower India, FAUST, S. E. Z. liii, p. 48, n. sp.
- Yuccaborus sharpi*, p. 688, Mexico, *grossus*, Texas, p. 689, CASEY, Ann. N. York Ac. vi, n. spp.
- Zygops suffusus*, Texas, CASEY, p. 459, Ann. N. York Ac. vi.

## CERAMBYCIDÆ.

- [Cf. BALBI (31), BATES (36), BLACKBURN (90, 93, 94), BRONGNIART (133), CASEY (161), DISTANT (210, 216), DUVIVIER (230, 231), FAIRMAIRE (262, 266, 268, 269), FRIVALDSZKY (309, 310), GAHAN (315, 316), GESTRO (324, 334), LAMEERE (534), NONFRIED (644, 645, 647, 648), OLLIFF (655), PÉRINGUEY (672, 673), PIC (677, 678, 679, 681, 683, 686, 688, 691), POLL (697), REITTER (725), RITSEMA (760, 763, 764), THÉRY (921), VILLARD (976).]
- Acanthoderes nigratarsis*, White, = (*syleanus*, Bates); GAHAN, p. 264, Tr. E. Soc. 1892.
- A. piperatus*, p. 262, pl. xii, fig. 4, *signatus*, p. 263, fig. 3, Mexico, GAHAN, Tr. E. Soc. 1892, n. spp.
- Acmaeops*: synonymy of the N. American species: CASEY, p. 38, Ann. N. York Ac. vi.
- A. varipes*, California, CASEY, p. 38, Ann. N. York Ac. vi, n. sp.

- Acyphoderes cribricollis*, Mexico, BATES, p. 160, pl. vi, fig. 6, Tr. E. Soc. 1892, n. sp.
- Elara severa*, Congo, DUVIVIER, p. 360, Ann. Ent. Belg. xxxvi, n. sp.
- Agada*, n. g., near *Callidium*, FAIRMAIRE, p. clxxi, for *A. clavicornis*, n. sp., Madagascar; FAIRMAIRE, Bull. Soc. Ent. Fr. lxi.
- Alphitopola robecchii*, Somaliland, GESTRO, p. 786, Ann. Mus. Genov. (2) xii; *A. lameerei*, Gaboon, DUVIVIER, p. 351, Ann. Ent. Belg. xxxvi : n. spp.
- Anatinomma*, n. g., near the *Piezocerides*, p. 150, for *A. alveolatum*, n. sp., Mexico, p. 151, pl. v, fig. 8; BATES, Tr. E. Soc. 1892.
- Ancylocera rubella*, Mexico, BATES, p. 170, pl. vii, fig. 8, Tr. E. Soc. 1892, n. sp.
- Aneflus cylindricollis*, p. 147, pl. v, fig. 1, *A. ? fulvipennis*, fig. 2, p. 148, Mexico, BATES, Tr. E. Soc. 1892, n. spp.
- Anisopodus brevis*, Mexico, GAHAN, p. 266, pl. xii, fig. 12, Tr. E. Soc. 1892, n. sp.
- Anthophilax subcittata*, Colorado, CASEY, p. 37, Ann. N. York Ac. vi, n. sp.
- Anybostetha quedenfeldti*, Congo, DUVIVIER, Ann. Ent. Belg. xxxvi, p. 59, n. sp.
- Aphneope quadrimaculata*, Queensland, POLL, p. 220, pl. xiii, fig. 2, Tijdschr. Ent. xxxiv, n. sp.
- Apilocera breviformis*, pl. vi, fig. 15, *yucateca*, fig. 16, Mexico, BATES, p. 165, Tr. E. Soc. 1892, n. spp.
- Aposites lanaticollis*, S. Australia, p. 61, *niger*, W. Australia, p. 62, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Arcetolamia fasciata*, Burma, GESTRO, p. 222, Ann. Mus. Genov. (2) x, n. sp.
- Aristobia pulcherrima*, S. China, NONFRIED, p. 94, Ent. Nachr. xviii, n. sp.
- Asemum striatum*, minute structure of elytra; HOFFBAUER (405).
- A. glabrellum*, Mexico, BATES, Tr. E. Soc. 1892, p. 146, pl. v, fig. 6, n. sp.
- Athetesis convergens*, Mexico, BATES, p. 171, pl. vii, fig. 10, Tr. E. Soc. 1892, n. sp.
- Axestoleus*, n. g., near *Batyle*, p. 180, for *Batyle meridionalis*, Bates, and *Axestoleus quinquepunctatus*, n. sp., Mexico, pl. vii, fig. 16, p. 181; BATES, Tr. E. Soc. 1892.
- Batyle laevicollis*, Mexico, BATES, p. 181, pl. vii, fig. 15, Tr. E. Soc. 1892, n. sp.
- Bebius variegatus*, Victoria, BLACKBURN, p. 64, Tr. R. Soc. S. Austr. xv, n. sp.
- Bethelium tricolor*, S. Australia, p. 56, *mundum*, N. S. Wales, p. 57, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Brachyta bifasciata*, n. var. *caucasica*; ROST, Ent. Nachr. xviii, p. 81.
- Cullichroma splendidum*, notes on; HAMILTON, p. 38, Canad. Ent. xxiv.
- Callimus akbesianus*, Syria, PIC, p. 416, Ann. Soc. Ent. Fr. lxi, n. sp.
- Callipogon*: monograph of; NONFRIED, pp. 17-24, pl. iii, Berl. Ent. Zeit. xxxvii.
- C. hauseri*, p. 20, *friedlaenderi*, p. 22, Honduras, NONFRIED, Berl. Ent. Zeit. xxxvii, n. spp.

- Camira* : was made from a composite insect, and the name should be deleted ; RITSEMA, p. 54, Notes Leyd. Mus. xiv.
- Centrodera nevadica*, male noticed ; CASEY, p. 36, Ann. N. York Ac. vi.
- Cerambyx* : characters of the European species ; BELON, pp. 70 & 71, Échange, 1892.
- C. lucasi*, Siam, BRONGNIART, p. 238, pl. x, fig. 4, N. Arch. Mus. Paris (3) iii, n. sp.
- Cerosterna ocellata*, Siam, NONFRIED, p. 379, Berl. Ent. Zeit. xxxvi, n. sp.
- Championa badeni*, Mexico, BATES, p. 170, Tr. E. Soc. 1892, n. sp.
- Charisia*, new name to replace *Charis*, Newm. ; CHAMPION, p. 161, Tr. E. Soc. 1892.
- Charisia nigerrima*, Mexico, BATES, p. 160, pl. vi, fig. 8, Tr. E. Soc. 1892, n. sp.
- Chreostes cinerascens*, S. W. Africa, PÉRINGUEY, p. 80, Tr. S. African Phil. Soc. vi (2), n. sp.
- Chrotoma*, n. g., near *Hesperophanes*, for *C. dunniana* n. sp., Texas ; CASEY, p. 27, Ann. N. York Ac. vi.
- Chrysoprasia guerrensis*, Mexico, BATES, p. 167, pl. vii, fig. 3, Tr. E. Soc. 1892, n. sp.
- Cirrhciera conspicua*, pl. xii, fig. 13, *basalis*, fig. 5, Mexico, GAHAN, p. 269, Tr. E. Soc. 1892, n. spp.
- Closteromerus amabilis*, S. W. Africa, PÉRINGUEY, p. 78, Tr. S. African Phil. Soc. vi (2), n. sp.
- Clytanthus hololeucus*, Mexico, BATES, p. 163, Tr. E. Soc. 1892, n. sp.
- Clytus bifarius*, Heyd., = (*reitteri*, Théry) ; HEYDEN, p. cxxxi, Bull. Soc. Ent. Fr. lxi. *C. ciliciensis*, Chev., = (*bifarius*, Heyd.) ; PIC, p. cxlvii, Bull. Soc. Ent. Fr. lxi. *C. arietis*, metamorphoses ; XAMBEU, Mœurs, ii, p. 23.
- C. (Sphegestes) reitteri*, Syria, *mayeti*, Siberia, THÉRY, p. xcvi, Bull. Soc. Ent. Fr. lxi ; *C. (Xylotrechus) villioni*, Japan, VILLARD, p. li, Bull. Soc. Ent. Fr. lxi : n. spp.
- Conizonia lepriouri*, Algeria, PIC, p. lii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Coptops hypocrita*, Gaboon, LAMEERE, p. 506, Ann. Ent. Belg. xxxvi, n. sp.
- Cordylomera annulicornis*, Obock, FAIRMAIRE, p. 122, Rev. d'Ent. xi, n. sp.
- Cortodera umbripennis*, ♂ described ; REITTER, p. 239, Wien. ent. Z. xi.
- C. reitteri*, Sarepta, PIC, p. 43, Échange, 1891, n. sp.
- Cosmisoma nudicorne*, Panama, BATES, p. 166, pl. vii, fig. 2, Tr. E. Soc. 1892, n. sp.
- Criodion fulvopilosum*, Brazil, p. 23, *antennatum*, Venezuela, p. 24, *dejeani*, Brazil, *tuberculatum*, Peru, p. 25, *testaceum*, p. 26, *quadrimaculatum*, *sommeri*, p. 27, Brazil, GAHAN, Ann. N. H. (6) ix : n. spp.
- Crioprosopus gaumeri*, Mexico, BATES, p. 172, Tr. E. Soc. 1892, n. sp.
- Crossidius longipennis*, New Mexico, p. 31, *crassipes*, Washington, p. 32, *nitidicollis*, Arizona, p. 33, CASEY, Ann. N. York Ac. vi ; *C. militaris*, p. 177, pl. vii, fig. 14, *ægrotus*, p. 178, Mexico, BATES, Tr. E. Soc. 1892 : n. spp.

- Crossotus sublineatus*, Somaliland, GFSTRO, p. 788, Ann. Mus. Genov. (2) xii; *C. klugii*, Transvaal, DISTANT, Naturalist Transvaal, p. 203, pl. i, fig. 8 : n. spp.
- Cyclocranium*, n. g. (*Ametrocephalinae*), p. 219, for *C. swierstræ*, n. sp., Victoria, pl. xiii, fig. 1, p. 230; POLL, Tijdschr. Ent. xxxiv.
- Cyrtognathus siamensis*, Siam, NONFRIED, p. 375, Berl. Ent. Zeit. xxxvi, n. sp.
- Dalterus*, n. g., *Anauxesides*, p. 125, for *D. auberti*, n. sp., Obock, p. 126; FAIRMAIRE, Rev. d'Ent. xi.
- Daramus*, n. g., near *Tetropium*, for *D. serricornis*, n. sp., Obock; FAIRMAIRE, p. 121, Rev. d'Ent. xi.
- Delagrangus*, n. g., near *Deilus*, p. xciii, for *D. angustissimus*, n. sp., Syria, p. xciv; PIC, Bull. Soc. Ent. Fr. lxi.
- Deliathis diluta*, Mexico, GAHAN, p. 257, pl. xii, fig. 11, Tr. E. Soc. 1892, n. sp.
- Deltaspis rufostigma*, p. 173, *fulva*, p. 174, *tuberculicollis*, p. 175, Mexico, BATES, Tr. E. Soc. 1892, n. spp.
- Derobrachus smithi*, Mexico, BATES, Tr. E. Soc. 1892, p. 144, n. sp.
- Dichostates molossus*, Congo, DUVIVIER, p. 359, Ann. Ent. Belg. xxxvi, n. sp.
- Dichostethes nebulosus*, Obock; FAIRMAIRE, p. 124, Rev. d'Ent. xi.
- Didymocantha novica*, Victoria, BLACKBURN, p. 233, Tr. R. Soc. S. Austr. xv, n. sp.
- Distenia lineatopora* and *hægei*, variation noticed; BATES, pp. 156 & 157, Tr. E. Soc. 1892.
- D. trifasciata*, Mexico, BATES, p. 157, pl. vi, fig. 1, Tr. E. Soc. 1892, n. sp.
- Dorcadion equestre*, variation described and figured; KRAATZ, p. 173, pl. iii, figs. 3-22, Deutsche e. Z. 1892. *D. uhagoni*, n. var. *panteli*; THÉRY, p. xcvi, Bull. Soc. Ent. Fr. lxi.
- D. cervæ*, Hungary, FRIVALDSZKY, p. 133, Term. füzetek, xv, n. sp.
- Eburia baroni*, p. 148, pl. v, fig. 3, *porulosa*, fig. 5, p. 149, Mexico; BATES, Tr. E. Soc. 1892, n. spp.
- Ectosticta ornata*, Victoria, BLACKBURN, p. 66, Tr. R. Soc. S. Austr. xv, n. sp.
- Ecyrus* and *Æbaceres*: notes on the composition of; GAHAN, p. 259, Tr. E. Soc. 1892.
- E. arcuatus*, Mexico, GAHAN, p. 259, Tr. E. Soc. 1892, n. sp.
- Elaphidion arizonense*, p. 28, *levettei*, p. 29, Arizona, CASEY, Ann. N. York Ac. vi, n. spp.
- Elytroleptus scabricollis*, Mexico, BATES, p. 172, pl. vii, fig. 7, Tr. E. Soc. 1892, n. sp.
- Entomosterna prolixa*, Mexico, BATES, p. 180, Tr. E. Soc. 1892, n. sp.
- Ergates spiculatus* and *neomexicanus*, distinctions of; CASEY, p. 20, Ann. N. York Ac. vi.
- Euclea nodicornis*, Amboyna, RITSEMA, p. 38, Notes Leyd. Mus. xi, n. sp.

- Euderces cribripennis*, Mexico, BATES, p. 165, pl. vi, fig. 14, Tr. E. Soc. 1892, n. sp.
- Eupogonius tomentosus*, habits; HAMILTON, p. 39, Canad. Ent. xxiv.
- Euryptera unicolor*, pl. vi, fig. 3, Mexico, *planicoxis*, Panama, fig. 5, BATES, p. 159, Tr. E. Soc. 1892, n. spp.
- Exocentrus ruficollis*, Congo, LAMEERE, p. 508, Ann. Ent. Belg. xxxvi, n. sp.
- Gasponia*, n. g., near *Gnathænia*, for *G. gaurani*, n. sp., Obock; FAIRMAIRE, p. 123, Rev. d'Ent. xi.
- Gaurotes multiguttatus*, Mexico, BATES, p. 158, pl. vi, fig. 2, Tr. E. Soc. 1892, n. sp.
- Glenea florensis*, p. 221, Flores, *oberthuri*, p. 222, Java, RITSEMA, Notes Leyd. Mus. xiv, n. spp.
- Gnatholea* (sub *Hesperophanes*) *liturifer*, Wlk., = (*denticollis* and *picornis*), Fairm.; FAIRMAIRE, p. 120, Rev. d'Ent. xi.
- Gnomidolon denticorne*, Panama, BATES, p. 155, Tr. E. Soc. 1892, n. sp.
- Gracilia pygmæa*, habits; VERHOEFF, p. 298, Ent. Nachr. xviii.
- Grammoptera auricollis*, n. var. *lucidipes*; PIC, p. 290, Abeille, xxvii.
- G. angustata*, Algeria, PIC, p. 289, Abeille, xxvii, n. sp.
- Hammaticherus consobrinus*, Cayenne, p. 19, *lacordairei*, Buenos Aires, p. 20, *punctulatus*, p. 21, *lasiocerus*, Brazil, *murinus*, Corrientes, *luridipennis*, French Guiana, p. 22, GAHAN, Ann. N. H. (6) ix, n. spp.
- Hecyrída lutulenta*, Somaliland, GESTRO, p. 789, Ann. Mus. Genov. (2) xii, n. sp.
- Herpetophygus fasciatus*, S. Africa, PÉRINGUEY, p. 79, Tr. S. African Phil. Soc. vi (2).
- Hexoplus smithi*, pl. v, fig. 12, p. 154, *sylvarum*, fig. 14, p. 155, Mexico, BATES, Tr. E. Soc. 1892, n. spp.
- Hippopsis imitans*, Congo, DUVIVIER, p. 364, Ann. Ent. Belg. xxxvi, n. sp.
- Homæophlæus*, n. g., near *Onychocerus*, for *H. licheneus*, n. sp., Mexico, pl. xii, fig. 6; GAHAN, p. 261, Tr. E. Soc. 1892.
- Hylotrupes litigiosus*, N. America, CASEY, p. 25, Ann. N. York Ac. vi, n. sp.
- Hyperplatys californica*, Sta. Cruz, CASEY, p. 51, Ann. N. York Ac. vi, n. sp.
- Hysterarthron* belongs to *Lagriidæ*; RITSEMA, p. 54, Notes Leyd. Mus. xiv.
- Ibidion ruatanum*, Honduras, pl. v, fig. 15, p. 155, *griseolum*, fig. 13, *gaumeri*, fig. 16, p. 156, Mexico, BATES, Tr. E. Soc. 1892, n. spp.
- Ipochus subnitidus*, *pubescens*, California, CASEY, p. 45, Ann. N. York Ac. vi, n. spp.
- Ischnocnemis cyaneus*, BATES, p. 178, Tr. E. Soc. 1892, n. sp.
- Ispaterus*, n. g., near *Exocentrus*, p. 122, for *I. longipilis*, n. sp., Obock, p. 123; FAIRMAIRE, Rev. d'Ent. xi.
- Lasiogaster*, n. g., *Monodesminæ*, p. 255, for *L. costipennis*, n. sp., British Honduras, p. 256; GAHAN, Tr. E. Soc. 1892.

- Leiopus bedeli*, Algeria, PIC, p. 289, Abeille, xxvii; *L. setipes, mimeticus*, Texas, CASEY, p. 48, Ann. N. York Ac. vi; *L. batesi*, Mexico, GAHAN, p. 265, pl. xii, fig. 9, Tr. E. Soc. 1892: n. spp.
- Leontium binotatum*, Siam, BRONGNIART, p. 245, pl. x, fig. 9, N. Arch. Mus. Paris (3) iii, n. sp.
- Leptostylus arciferus*, Mexico, GAHAN, p. 265, pl. xii, fig. 8, Tr. E. Soc. 1892, n. sp.
- Leptura attenuata*, v. *brunnescens*, Caucasus, BALBI, Riv. Ital. Sci. Nat. xii, p. 49, n. sp. (*sic*); *L. serpentina*, p. 41, *haldemani*, p. 42, *lacustris*, p. 43, N. America, CASEY, Ann. N. York Ac. vi: n. spp.
- Litopus suturalis*, S. Africa, PÉRINGUEY, p. 131, Tr. S. African Phil. Soc. vi (2), n. sp.
- Lycidola levipennis*, Panama, GAHAN, p. 272, pl. xii, fig. 1, Tr. E. Soc. 1892, n. sp.
- Lygesis?* *ornata*, Queensland, BLACKBURN, p. 63, Tr. R. Soc. S. Austr. xv, n. sp.
- Macrotoma tenuelimbata*, Madagascar, NONFRIED, p. 139, Ent. Nachr. xviii; *M. alteni*, Siam, p. 376, *difformis*, E. India, p. 377, NONFRIED, Berl. Ent. Zeit. xxxvi: n. spp.
- Malacoscyclus humilis*, n. varr. *griseus*, *fulvescens*, pl. xii, fig. 16; GAHAN, p. 271, Tr. E. Soc. 1892.
- M. bivittatus*, Mexico, GAHAN, Tr. E. Soc. 1892, p. 272, pl. xii, fig. 15, n. sp.
- Mallonia granulata*, Transvaal, DISTANT, p. 407, Ann. N. H. (6) x, n. sp.
- Maulia*, n. g. of doubtful position, ? near *Phalota*, p. 65, for *M. picticornis*, n. sp., Victoria, p. 66; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- Mecas marmorata*, Mexico, GAHAN, p. 268, pl. xii, fig. 7, Tr. E. Soc. 1892, n. sp.
- Mesolita inermis*, p. 226, pl. xiii, fig. 8, *pascoei*, p. 227, fig. 6, Queensland, POLL, Tijdschr. Ent. xxxiv, n. spp.
- Metaleptus comis*, Mexico, BATES, p. 175, pl. vii, fig. 9, Tr. E. Soc. 1892, n. sp.
- Microtragus quadrimaculatus*, Queensland, BLACKBURN, p. 235, Tr. R. Soc. S. Austr. xv, n. sp.
- Monocladum*, n. subg. of *Polyarthron*; PIC, p. cclx, Bull. Soc. Ent. Fr. lxi.
- Monohammus*: the Siberian species noticed; REITTER, p. 187, Wien. ent. Z. xi.
- M. severini*, S. China, NONFRIED, p. 94, Ent. Nachr. xviii; *M. frenchi*, S. Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi, p. 543; *M. obtusus*, California, CASEY, p. 47, Ann. N. York Ac. vi: n. spp.
- Moneilema (Collapteryx) spinicollis*, Arizona, CASEY, p. 45, Ann. N. York Ac. vi, n. sp.
- Mylothris bimaculatus*, Siam, BRONGNIART, p. 252, N. Arch. Mus. Paris (3) iii, n. sp.
- Mystacophorus* recharacterised; DUVIVIER, p. 368, Ann. Ent. Belg. xxxvi.

- Necydalis major* and *panzeri*, distinctive characters; CHOBOUT, Échange, No. 61, 1890, p. 100.
- Nemophas malachiticus*, Sumatra, NONFRIED, Berl. Ent. Zeit. xxxvi, n. sp.
- Neoclytus smithi*, Mexico, BATES, p. 164, pl. vi, fig. 9, Tr. E. Soc. 1892, n. sp.
- Neodorcadion flachneri*, n. var., *merkli*, PIC, p. cxvii, Bull. Soc. Ent. Fr. lxi.
- Nitocris gigantea*, Zambesi, NONFRIED, p. 140, Ent. Nachr. xviii, n. sp.
- Nyoma*, n. g., *Acanthocinidarum*, p. 366, for *N. parallela*, n. sp., Congo, p. 367; DUVIVIER, Ann. Ent. Belg. xxxvi.
- Nyphasia maculata*, Saïgon, BRONGNIART, p. 240, pl. x, fig. 3, N. Arch. Mus. Paris (3) iii, n. sp.
- Oberea schaumii*, peculiar larva described and figured; RILEY, p. 323, P. E. Soc. Wash. ii.
- Ochresthes nigritus*, pl. vi, fig. 10, *clerinus*, fig. 13, p. 162, *obscuricornis*, *tulensis*, fig. 12, p. 163, Mexico, BATES, Tr. E. Soc. 1892: n. spp.
- Ochyra nana*, N. S. Wales, POLL, p. 225, pl. xiii, fig. 7, Tijdschr. Ent. xxxiv, n. sp.
- Odontocera yucateca*, Mexico, BATES, p. 159, pl. vi, fig. 7, Tr. E. Soc. 1892, n. sp.
- Olenecamptus macari*, Trop. Africa, LAMEERE, p. 507, Ann. Ent. Belg. xxxvi, n. sp.
- Ophistomis xanthotelus*, Mexico, BATES, p. 158, pl. vi, fig. 4, Tr. E. Soc. 1892, n. sp.
- Opsidota guttata*, S. Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. sp.
- Oreodera affinis*, Guatemala, GAHAN, p. 262, pl. xii, fig. 14, Tr. E. Soc. 1892, n. sp.
- Pachylocerus sulcatus*, Siam, BRONGNIART, p. 240, pl. x, fig. 4, N. Arch. Mus. Paris (3) iii, n. sp.
- Pachymerola*, n. g., near *Coremia* for *P. vitticollis*, n. sp., Mexico, pl. vi, fig. 11; BATES, Tr. E. Soc. 1892, p. 161.
- Pachyteria pastouri*, p. 213, *lugubris*, p. 215, Nias Is., *borneoensis*, Sarawak, p. 218; RITSEMA, Notes Leyd. Mus. xiv.
- Paroeme gahani*, Transvaal, DISTANT, Naturalist Transvaal, p. 202, pl. i, fig. 7, n. sp.
- Parysatis nigritarsis*, Thoms., = (*flavescens*, Bates); GAHAN, p. 258, Tr. E. Soc. 1892.
- P. perplexa*, Mexico, GAHAN, p. 258, Tr. E. Soc. 1892, n. sp.
- Pavieia*, n. g., near *Crioprosopus*, p. 241, for *P. superba*, n. sp., Siam, p. 243, pl. x, fig. 6; BRONGNIART, N. Arch. Mus. Paris. (3) iii.
- Phœa unicolor*, Mexico, GAHAN, p. 267, Tr. E. Soc. 1892, n. sp.
- Phryneta nupera*, Limpopo Riv., PÉRINGUEY, p. 133, Tr. S. African Phil. Soc. vi (2), n. sp.
- Phyllocnema speciosa*, S. W. Africa, PÉRINGUEY, p. 78, Tr. S. African Phil. Soc. vi (2); *P. pretiosa*, Limpopo Riv., PÉRINGUEY, p. 130, t. c.: n. spp.

- Phymatodes obliquus*, California, CASEY, p. 26, Ann. N. York Ac. vi, n. sp.
- Phytæcia* (*Coptosia*) *trilinea*; PIC, p. cxii, Bull. Soc. Ent. Fr. lxi; *P. pici*, Araxes Valley, REITTER, p. 64, Wien. ent. Z. xi, n. spp.
- Plocederus incertus*, Somaliland, GESTRO, p. 784, Ann. Mus. Genov. (2) xii, n. sp.
- Pœcilomallus*, n. g., *Elaphidiinæ*, for *P. palpalis*, n. sp., Mexico, pl. v, fig. 6; BATES, p. 151, Tr. E. Soc. 1892.
- Polyarthron unipectinatum*, White, sexes described and figured; HEYDEN, p. 169, pl. iii, figs. 1 & 2, Deutsche e. Z. 1892.
- P. desvauxi*, p. cclix, *moissoni*, p. cclx, Algeria, PIC, Bull. Soc. Ent. Fr. lxi, n. spp.
- Praonetha lichenea*, Congo, DUVIVIER, p. 363, Ann. Ent. Belg. xxxvi, n. sp.
- Prionus ruficornis*, *nadari*, Turkestan, FAIRMAIRE, p. cxxiii, Bull. Soc. Ent. Fr. lxi; *P. debilis*, N. America, CASEY, p. 21, Ann. N. York Ac. vi: n. spp.
- Promeces crassicornis*, Somaliland, GESTRO, p. 785, Ann. Mus. Genov. (2) xii, n. sp.
- Proteinidium*, n. g., near *Axestinus*, p. 149, for *P. brevicorne*, n. sp., Mexico, p. 150, pl. v, fig. 4; BATES, Tr. E. Soc. 1892.
- Psenocerus supernotatus* and *tristis*, variation of; HAMILTON, p. 160, Canad. Ent. xxiv.
- P. tristis*, New Mexico, CASEY, p. 46, Ann. N. York Ac. vi, n. sp.
- Psyrassa sthenias*, *punctulata*, *cribellata*, pl. v, fig. 9, p. 152, *pilosella*, fig. 11, *nigricornis*, fig. 10, *nigroænea*, p. 153, Mexico, BATES, Tr. E. Soc. 1892, n. spp.
- Purpuricenus fasciatus*, Siam, BRONGNIART, p. 241, pl. x, fig. 5, N. Arch. Mus. Paris (3) iii, n. sp.
- Rhopalophora longipes* and *meeskei*, note on; HAMILTON, p. 159, Canad. Ent. xxiv.
- R. meeskei*, New Mexico, CASEY, p. 30, Ann. N. York Ac. vi; *R. eximia*, Mexico, BATES, p. 166, pl. vii, fig. 1, Tr. E. Soc. 1892: n. spp.
- Rhytidodera siamica*, Siam, NONFRIED, p. 378, Berl. Ent. Zeit. xxxvi, n. sp.
- Rosalia lameerei*, Siam, BRONGNIART, p. 243, pl. x, figs. 7 & 8, N. Arch. Mus. Paris (3) iii.
- Saperda phoca*, habits; DELAGRANGE, Bull. Soc. Ent. Fr. lxi, p. ccxxii.
- Sisyrium*: note on characters, p. 58, and table of species, p. 61; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- S. fraterum*, p. 58, *ventrale*, p. 59, *sparsum*, S. Australia, *lævigatum*, W. Australia, p. 60, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Spalacopsis texana*, Texas, CASEY, p. 51, Ann. N. York Ac. vi; *S. similis*, *fusca*, Mexico, GAHAN, p. 260, Tr. E. Soc. 1892: n. spp.
- Sphallenum literatum*, p. 28, *spadiceum*, p. 29, Brazil, GAHAN, Ann. N. H. (6) ix, n. spp.
- Sphenothecus rubens*, Arizona, CASEY, p. 34, Ann. N. York Ac. vi; *S. quadrivittatus*, *cribricollis*, *cribellatus*, Mexico, BATES, p. 179, Tr. E. Soc. 1892: n. spp.

- Spondylis sinensis*, S. China, NONFRIED, p. 92, Ent. Nachr. xviii, n. sp.
- Stenaspis pilosella*, Mexico, BATES, p. 173, pl. vii, fig. 11, Tr. E. Soc. 1892, n. sp.
- Stenopterus kraatzii*, Smyrna, PIC, p. 22, Échange, 1892, n. sp.
- Stenosphenus longicollis*, Texas, CASEY, p. 34, Ann. N. York Ac. vi ;  
*S. sublævicolis*, p. 168, *sexlineatus*, pl. vii, fig. 5, *gaumeri*, *comus*,  
*vitticollis*, fig. 6, p. 169, Mexico, BATES, Tr. E. Soc. 1892 : n. spp.
- Sternoplistes schabilei*, S. China, NONFRIED, p. 92, Ent. Nachr. xviii, n. sp.
- Strangulia* : sexual distinctions ; CASEY, p. 39, Ann. N. York Ac. vi.
- S. montana*, New Mexico, CASEY, Ann. N. York Ac. vi, p. 40, n. sp.
- Stratioceros princeps*, figured and noticed ; BRONGNIART, p. 248, pl. x, fig. 10, N. Arch. Mus. Paris (3) iii.
- Strongylaspis lobulifer*, Mexico, BATES, p. 145, Tr. E. Soc. 1892, n. sp.
- Sympleurotis armatus*, Mexico, GAHAN, p. 266, pl. xii, fig. 10, Tr. E. Soc. 1892, n. sp.
- Taurotagus auberti*, Obock, FAIRMAIRE, p. 118, Rev. d'Ent. xi, n. sp.
- Teispes frenchi*, Queensland, BLACKBURN, p. 234, Tr. R. Soc. S. Austr. xv, n. sp.
- Tetropium luridum*, minute structure of elytra ; HOFFBAUER (405).
- T. parallelum*, p. 23, *schwarzianum*, *parvulum*, p. 24, N. America, CASEY, Ann. N. York Ac. vi ; *T. guatemalanum*, Tepan, BATES, p. 147, Tr. E. Soc. 1892 : n. spp.
- Thesalia*, n. g., for *Acmaeops lisa*, Leng ; CASEY, p. 36, Ann. N. York Ac. vi.
- Tibetobia*, n. g., near *Monochammus*, p. 118, for *T. szechenyiana*, n. sp., Tibet ; FRIVALDSZKY, Term. füzetek, xv.
- Tilloclytus conradti*, Guatemala, BATES, p. 164, Tr. E. Soc. 1892, n. sp.
- Toxotus laterialis*, California, CASEY, p. 37, Ann. N. York Ac. vi, n. sp.
- Trachystola armata*, S. China, NONFRIED, p. 93, Ent. Nachr. xviii, n. sp.
- Tragidion fulvipenne*, oviposition ; POPENOE, Tr. Kansas Ac. xii, p. 15.
- Tragocephala carbonaria*, Trop. Africa, LAMEERE, p. 507, Ann. Ent. Belg. xxxvi ; *T. timida*, Congo, DUVIVIER, p. 167, Ann. Ent. Belg. xxxvi ;  
*T. sulphurata*, Transvaal, DISTANT, Naturalist Transvaal, p. 202, pl. i, fig. 9 : n. spp.
- Tragosoma depsarium* and *harrisii* are one species ; HAMILTON, p. 296, Canad. Ent. xxiv.
- T. nigripenne*, Mexico, BATES, p. 146, Tr. E. Soc. 1892, n. sp.
- Triacetelus*, n. g., near *Metaleptus*, for *T. sericatus*, n. sp., Mexico ; BATES, p. 176, Tr. E. Soc. 1892.
- Trichoxys cinereolus*, Mexico, BATES, p. 162, Tr. E. Soc. 1892, n. sp.
- Trichromia*, n. g., near *Anthribola*, for *T. oberthuri*, n. sp., Madagascar ; FAIRMAIRE, Bull. Soc. Ent. Fr. lxi, p. xxi.
- Tritomicrus*, n. g., near *Hoplosia* for *T. marmoreus*, n. sp., Obock ; FAIRMAIRE, Rev. d'Ent. xi, p. 125.
- Tryphocharia mitchelli*, note on, BLACKBURN, p. 56, Tr. R. Soc. S. Austr. xv ; *T. frenchi*, N. S. Wales, BLACKBURN, p. 233, t. c. : n. spp.

- Tylosis puncticollis*, var., = (*angusticollis*, Bates); BATES, p. 177, Tr. E. Soc. 1892.
- T. dimidiata*, Mexico, BATES, Tr. E. Soc. 1892, pl. vii, fig. 13, n. sp.
- Typhocesis floccosa*, Poll, figured; POLL, pl. xiii, fig. 10, Tijdschr. Ent. xxxiv.
- Uracanthus cryptophagus*, Australia, OLLIFF, p. 896, pl. lvii, Agric. Gaz. N.S.W. iii, n. sp.
- Valenus*, n. g., near *Lepturges*, p. 49, for *V. inornatus*, n. sp., Texas, p. 50; CASEY, Ann. N. York Ac. vi.
- Volumnia transversalis*, Trop. Africa, LAMEERE, p. 508, Ann. Ent. Belg. xxxvi, n. sp.
- Xestia denticornis*, p. 29, *longipennis*, *globulicollis*, p. 31, Brazil, GAHAN, Ann. N. H. (6) ix : n. spp.
- Xoanodera pascoei*, Siam, BRONGNIART, p. 239, N. Arch. Mus. Paris (3) iii, n. sp.
- Xylotrechus insignis*, sexual distinctions, CASEY, p. 35, Ann. N. York Ac. vi, n. sp.
- Xystrocera parvicollis*, Obock, FAIRMAIRE, p. 120, Rev. d'Ent. xi; *X. lata*, S. W. Africa, PÉRINGUEY, p. 77, Tr. S. African Phil. Soc. vi (2) : n. spp.
- Zalates pulchra*, Transvaal, PÉRINGUEY, p. 132, Tr. S. African Phil. Soc. vi (2), n. sp.
- Zamium rusticum*, S. W. Africa, PÉRINGUEY, p. 77, Tr. S. African Phil. Soc. vi (2), n. sp.
- Zatrephus nebulosus*, Saïgon, BRONGNIART, p. 240, pl. x, fig. 2, N. Arch. Mus. Paris (3) iii, n. sp.
- Zenochloris barbicauda*, Mexico, BATES, p. 168, pl. vii, fig. 4, Tr. E. Soc. 1892, n. sp.
- Zoëdia v-album*, figured, pl. xiii, fig. 3; *Z. divisa*, Pasc., = (*elegans*, Waterh.), p. 222, POLL, Tijdschr. Ent. xxxiv.
- Z. longipes*, p. 222, p. 13, fig. 4, *gracilipes*, p. 223, fig. 5, Australia, *tenuis*, p. 224, fig. 6, POLL, Tijdschr. Ent. xxxiv, n. spp.

## SCOLYTIDÆ.

- [Cf. BLANDFORD (100), DESBROCHERS (199), KNOTEK (500), XAMBEU (1022).]
- Hylesinus henscheli*, Herzegovina, KNOTEK, p. 234, Wien. ent. Z. xi, n. sp.
- Hypoborus ficus*, metamorphoses; XAMBEU, Soc. Agricole Pyrén.-orient. xxxii, p. 473.
- Phlæotribus oleæ*, metamorphoses; XAMBEU, Soc. Agricole Pyrén.-orient. xxxii, pp. 477-484.
- Pityophthorus annectens* and *consimilis*, note on; SCHWARZ, p. 167, P. E. Soc. Wash. ii.
- Scolytus*: table of characters of the European; DESBROCHERS, Frelon, i, pp. 10-17. *S. carpini*, habits, DECAUX, p. ccxli, Bull. Soc. Ent. Fr. lxi.
- S. aceris*, Herzegovina, KNOTEK, p. 235, pl. ii, Wien. ent. Z. xi, n. sp.
- Xyleborus perforans*, in the West Indies; BLANDFORD (100).

## BRENTHIDÆ.

[Cf. DESBROCHERS (203), KOLBE (506), SEMENOW (831), SENNA (837, 838, 839).]

List of additions to, and notes on the Catalogue of, *Brenthidæ*; SENNA, pp. 38-63.

Observations on the dimorphic form of male rostrum; SENNA, pp. 30-37, Bull. Ent. Ital. xxiv.

*Agriorrhynchus quadrituberculatus*, Burma, SENNA, p. 470, Ann. Mus. Genov. (2) xii, n. sp.

*Autarcus*, n. g., for *Ceocephalus laticollis*, Perroud; SENNA, p. 59, Bull. Ent. Ital. xxiv.

*Basenius*, n. g., for *B. laticornis*, E. Africa, n. sp.; KOLBE, p. 170, S. E. Z. liii.

*Callipareius*, n. g., near *Cyphagogus*, p. 444, for *C. feæ*, n. sp., Burma, p. 445; SENNA, Ann. Mus. Genov. (2) xii.

*Carcinopisthius*, n. g., for *C. fruhstorferi*, Java, p. 174, *felschei*, Burma, p. 175, n. spp.; KOLBE, S. E. Z. liii.

*Cediocera tristis*, Java, SENNA, p. 183, Notes Leyd. Mus. xiv, n. sp.

*Cerobates sexsulcatus*, variation, pp. 449, 450, *canaliculatus*, n. var., *cari-nensis*, p. 450; SENNA, Ann. Mus. Genov. (2) xii.

*Coptorhynchus francoisi*, New Hebrides, DESBROCHERS, p. 109, Frelon, i, n. sp.

*Cordus peguanus*, Burma, SENNA, p. 463, Ann. Mus. Genov. (2) xii, n. sp.

*Cormopus*, n. g., p. 166, for *C. penicillifer*, n. sp., Cameroons, p. 167; KOLBE, S. E. Z. liii.

*Diurus ominosus*, Burma, SENNA, p. 492, Ann. Mus. Genov. (2) xii, n. sp.

*Epicoiononeus*, n. g., *Belophorinæ*, p. 476, for *E. femoralis*, n. sp., Burma, p. 478; SENNA, Ann. Mus. Genov. (2) xii.

*Eremoxenus*, n. g., p. 438, for *E. chan*, n. sp., Transcaspien Region, p. 440, SEMENOW, Hor. Ent. Ross. xxvi.

*Hopliterrhynchus*, n. g., near *Ectocemus*, p. 26, for *H. emmæ*, n. sp., Malasia, p. 27; SENNA, Bull. Ent. Ital. xxiv.

*Hoplopisthius*, n. g., *Trachelizinæ*, p. 451, for *H. trichemerus*, n. sp., Burma, p. 452; SENNA, Ann. Mus. Genov. (2) xii.

*H. javanus*, Java, p. 173, *celebensis*, Celebes, p. 174, KOLBE, S. E. Z. liii, n. spp.

*Hyperephanus*, n. g., near *Jonthocerus*, p. 153, for *E.* (sic) *hirsutus*, n. sp., Chili, p. 155; SENNA, Bull. Ent. Ital. xxiv.

*Ithystenus*, = (*Coptorhynchus*, Desb.); SENNA, p. 152, Bull. Ent. Ital. xxiv.

*Microsebus*, n. g., p. 168, for *M. pusio*, E. Africa, *adelphus*, Ceylon, n. spp., p. 169; KOLBE, S. E. Z. liii.

*Miolispa javanica*, p. 167, *metallica*, p. 169, *nupta*, p. 171, *conformis*, p. 175, Java, SENNA, Notes Leyd. Mus. xiv, n. spp.

*Prophthalmus versicolor*, Burma, SENNA, p. 466, Ann. Mus. Genov. (2) xii, n. sp.

- Oncodemerus*, n. g., *Taphroderini*, p. 157, for *O. costipennis*, n. sp., Gaboon, p. 160 ; SENNA, Bull. Ent. Ital. xxiv.
- Orychodes degener*, Burma, SENNA, p. 474, Ann. Mus. Genov. (2) xii ;  
*O. piliferus*, Java, SENNA, Notes Leyd. Mus. xiv, p. 177 : n. spp.
- Schizotrachelus intermedius*, p. 481, *carinensis*, p. 483, *consanguineus*, *birmanicus*, p. 485, *sculptiventris*, p. 488, *carinirostris*, p. 489, Burma, SENNA, Ann. Mus. Genov. (2) xii, n. spp.
- Sebasius* : note on the components of ; KOLBE, p. 171, S. E. Z. liii.
- Trachelizus brevitibia*, p. 454, *bharnoensis*, p. 456, *ghecuanus*, p. 457, *rufomaculatus*, p. 460, *politus*, p. 462, Burma, SENNA, Ann. Mus. Genov. (2) xii ; *T. insularis*, p. 163, *modestus*, *mæstus*, p. 165, Java, SENNA, Notes Leyd. Mus. xiv : n. spp.
- Usambius*, n. g., p. 167, for *U. conradti*, n. sp., E. Africa, p. 168 ; KOLBE, S. E. Z. liii.
- Zemioses pubens*, p. 439, *latus*, p. 441, Burma, SENNA, Ann. Mus. Genov. (2) xii, n. spp.

## ANTHRIBIDÆ.

- [Cf. DUVIVIER (230), FAIRMAIRE (269), LESNE (547).]
- Cenchrormorphus*, n. g., *Corrhécérides*, for *C. barbicornis*, n. sp., Madagascar, FAIRMAIRE, p. clxx, Bull. Soc. Ent. Fr. lxi, n. sp.
- Eugigas harmandi*, Cochin China, LESNE, p. 227, N. Arch. Mus. Paris, (3) iii, n. sp.
- Litocerus paviei*, Siam, LESNE, p. 226, N. Arch. Mus. Paris (3) iii, n. sp.
- Phleotragus prasinus*, Congo, DUVIVIER, p. 59, Ann. Ent. Belg. xxxvi, n. sp.
- Vitalis*, n. g., near *Platyrrhinus*, for *V. rubricollis*, n. sp., Madagascar ; FAIRMAIRE, Bull. Soc. Ent. Fr. lxi, p. clxxi.

## BRUCHIDÆ.

- [Cf. HEYDEN (402), RILEY (751, 752, 754).]
- Bruchus* : temporary feet in early larvæ ; RILEY, pp. 185 & 186, Canad. Ent. xxiv. *B. fabæ* and *pisi*, metamorphoses ; RILEY & HOWARD, Ins. Life, iv, pp. 297-302. *B. obsoletus*, Say, note on ; HAMILTON, p. 162, Canad. Ent. xxiv. *B. obtectus*, Say, nomenclature and habits ; RILEY, Ins. Life, v, pp. 27-33, and note on, with synonymy ; RILEY, p. 291, Canad. Ent. xxiv. *B. alboscuteallatus*, habits ; HAMILTON, Ent. News, iii, p. 253.
- B. ruthenicus*, Sarepta, BECKER, p. 69, Bull. Mosc. 1892, n. sp. ?
- Mylabris (Bruchus) orchesioides*, Margelan, HEYDEN, p. 109, Deutsche e. Z. 1892, n. sp.

## CHRYSOMELIDÆ.

- [Cf. BALBI (31), BLACKBURN (90, 93, 94), CHITTENDEN (168), DESBROCHERS (204), DUVIVIER (230, 232), EVERTS (260), FAIRMAIRE (262), FRIVALDSZKY (309), GAHAN (210), GESTRO (325, 331, 335), GORHAM

(350), GORHAM & GAHAN (353), GUILLEBEAU (375), HORN (416, 418, 419), JACOBSON (444, 445), JACOBY (210, 347, 446, 447, 448), LEFÈVRE (543, 544), PÉRINGUEY (672, 673), REITTER (725), SCHWARZ (806), WEISE (992, 994, 996, 997, 998, 999).]

Food-habits of some N. American *Chrysomelidæ*; CHITTENDEN (168).

Food-plants of various N. American *Halticids*; SCHWARZ, pp. 182-184, P. E. Soc. Wash. ii.

*Halticidæ*: protest against generic names used by SEIDLITZ in *Fauna transsylvanica*; WEISE, p. 414, *Deutsche e. Z.* 1892.

*Abirus antennatus*, Burma, JACOBY, p. 912, *Ann. Mus. Genov.* (2) xii, n. sp.

*Achenops facialis*, Transvaal, JACOBY in DISTANT, *Naturalist Transvaal*, p. 204, pl. i, fig. 4, n. sp.

*Acrocrypta discoidalis*, Annam, ALLARD, p. 233, *N. Arch. Mus. Paris* (3) iii, n. sp.

*Ælianus*, n. g., near *Malacosoma*, for *Æ. scutellatus*, n. sp., Madagascar, pl. xxxix, fig. 9; JACOBY, p. 577, *P. Z. S.* 1892.

*Ænidea*? *pretorice*, Transvaal, GAHAN in DISTANT, *Naturalist Transvaal*, p. 209, pl. i, fig. 10; *Æ. crassipalpis*, Burma, JACOBY, p. 986, *Ann. Mus. Genov.* (2) xii : n. spp.

*Æthonea*, Baly, is same as *Bonesia*; GAHAN, p. 92, *P. Z. S.* 1892.

*Agelastica*? *flava*, Burma, JACOBY, p. 967, *Ann. Mus. Genov.* (2) xii; *A. viridis*, Mexico, JACOBY, p. 334, *Biol. Centr. Am. Col.* vi (1 supp.) : n. spp.

*Allochroma teapense*, pl. xliii, fig. 2, *flohri*, fig. 5, Mexico, JACOBY, p. 319, *Biol. Centr. Am. Col.* vi (1 supp.), n. spp.

*Allomorpha*, n. g., *Halticidæ*, for *A. sericea*, n. sp., Burma; JACOBY, *Ann. Mus. Genov.* (2) xii.

*Amphimela cyanea*, Bengal, DUVIVIER, p. 420, *Ann. Ent. Belg.* xxxvi, n. sp.

*Anisodera nasuelli*, Burma, GESTRO, p. 233, *Ann. Mus. Genov.* (2) x, n. sp.

*Anthipha pubescens*, p. 971, *inornata*, p. 972, *antennata*, *fecæ*, p. 973, *lævicollis*, p. 974, JACOBY, *Ann. Mus. Genov.* (2) xii; *A. blanchardi*, Indo-China, ALLARD, p. 234, *N. Arch. Mus. Paris* (3) iii : n. spp.

*Anthiphula*, n. g., between *Galerucinae* and *Halticinae*, provisionally placed near *Anthipha*, for *A. semifulva*, n. sp., Burma; JACOBY, p. 991, *Ann. Mus. Genov.* (2) xii.

*Antsianaka viridis*, *elegantula*, pl. xxxix, fig. 10, Madagascar, JACOBY, p. 576, *P. Z. S.* 1892, n. spp.

*Aoria nigrita*, p. 904, *fulvifrons*, p. 905, *semicostata*, p. 906, Burma, JACOBY, *Ann. Mus. Genov.* (2) xii : n. spp.

*Aphthona atrovirens*, var. described; WEISE, *Deutsche e. Z.* 1892, p. 411.

*A. nigrilabris*, Bengal, DUVIVIER, p. 426, *Ann. Ent. Belg.* xxxvi; *A. birmanica*, Pegu, JACOBY, p. 920, *Ann. Mus. Genov.* (2) xii : n. spp.

*Arcastes sanguinea*, Perak, JACOBY, p. 88, *Ent.* xxv, *Supp.*, n. sp.

- Argopistes bistrispunctata*, Bengal, DUVIVIER, p. 425, Ann. Ent. Belg. xxxvi; *A. nigromarginatus*, Burma, JACOBY, p. 931, Ann. Mus. Genov. (2) xii : n. spp.
- Argopistoides*, n. g., p. 931, for *A. septempunctata*, n. sp., Burma, p. 932; JACOBY, Ann. Mus. Genov. (2) xii.
- Arispoda pulcher*, N. Guinea, TRYON (953), n. sp.
- Asphæra madagascariensis*, *brevicornis*, Madagascar, JACOBY, p. 573, P. Z. S. 1892, n. spp.
- Aspidispa albertisii*, p. 265, *nigritarsis*, p. 266, New Guinea, GESTRO, Ann. Mus. Genov. (2) x, n. spp.
- Aspidolopha thoracica*, p. 879, *costata*, p. 881, *cærulea*, p. 882, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Aspidomorpha aruwimiensis*, Centr. Africa, GAHAN & GORHAM, p. 94, P. Z. S. 1892, n. sp.
- Atysa* ? *albofasciata*, Burma, JACOBY, p. 977, Ann. Mus. Genov. (2) xii, n. sp.
- Aulacophora*, auct., divided into genera (two presumably new, cf. *Pachypalpa*, *Orthaulaca*); WEISE, p. 392, Deutsche e. Z. 1892.
- A. melanocephala*, p. 941, *intermedia*, *semifusca*, p. 942, *gestroi*, p. 943, *bhamoensis*, p. 944, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Aulacoscelis purpurea*, Arizona, HORN, p. 46, Tr. Am. Ent. Soc. xix, n. sp.
- Blepharida singularis*, Mexico, JACOBY, p. 347, pl. xliii, fig. 23, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Bonesia serricornis*, var. described; GAHAN, p. 92, P. Z. S. 1892.
- Bufonida pallida*, p. 159, *piceo-limbata*, p. 960, Burma, JACOBY, Ann. Mus. Genov. (2) xii; *B. rubroviridis*, *intermedia*, New Guinea, TRYON (953) : n. spp.
- Cacoscelis cæruleipennis*, Mexico, JACOBY, p. 346, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Callispa arcana*, Bengal, DUVIVIER, p. 446, Ann. Ent. Belg. xxxvi, n. sp.
- Candezea longicornis*, *marginipennis*, p. 979, *apicalis*, p. 980, *ornata*, p. 981, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Cassena*, n. g., near *Nisotra*, for *C. celebensis*, p. 389, *ribbei*, p. 390, n. spp., Celebes, WEISE, Deutsche e. Z. 1892.
- Cassida* : monograph of the French species; DESBROCHERS, Frelon, i, Supp., & ii, pp. 82-87.
- C. thoracica*, p. 19, *sanguinosa*, p. 20, France, *corrosa*, *oranensis*, Algeria, p. 39, *cerata*, Syria, p. 40, *salsolæ*, Russia, p. 43, *nitidula*, Algeria, p. 44, DESBROCHERS, Frelon, i, Supp.; *C. reitteri*, Caucasus, WEISE, p. 238, Wien. ent. Z. xi; *C. bonnyana*, p. 94, *strigosa*, *fuscopunctata*, p. 95, Centr. Africa, GORHAM, P. Z. S. 1892; *C. (Odontionycha) indicola*, Bengal, DUVIVIER, p. 448, Ann. Ent. Belg. xxxvi : n. spp.
- Cassidula turcomenica*, Turcomania, WEISE, p. 238, Wien. ent. Z. xi, n. sp.
- Cerania*, subg. (n.?) of *Orthaulaca*; WEISE, p. 396, Deutsche e. Z. 1892.
- Ceratia cattigarensis*, Shanghai, p. 397, *tricolora*, Sumatra, *funesta*, Celebes, p. 398, WEISE, Deutsche e. Z. 1892, n. spp.

- Cerophysa fulvicollis*, p. 947, *monstrosa*, p. 948, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Cerotrus nigromarginatus*, Burma, JACOBY, p. 940, Ann. Mus. Genov. (2) xii, n. sp.
- Chaetocnema naggpurensis*, E. India, DUVIVIER, p. 422, Ann. Ent. Belg. xxxvi ; *C. birmanica*, *duvivieri*, Burma, JACOBY, p. 939, Ann. Mus. Genov. (2) xii ; *C. smithi*, *fulvilabris*, *interstitialis*, p. 313, *horni*, *balyi*, *costatipennis*, p. 314, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.) : n. spp.
- Charæa* ? *alboplagiata*, Burma, JACOBY, Ann. Mus. Genov. (2) xii, p. 975, n. sp.
- Chlamys fecæ*, Burma, JACOBY, p. 887, Ann. Mus. Genov. (2) xii, n. sp.
- Chæridiona fecæ*, Burma, GESTRO, p. 239, Ann. Mus. Genov. (2) x, n. sp.
- Chrysochus pretiosus*, metamorphoses ; XAMBEU, Le Nat. 1892, p. 117.
- Chrysolampra varicolor*, p. 893, *minuta*, p. 894, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Chryomela* : minute structure of elytra ; HOFFBAUER (405). *C. cærulans*, n. var. *olivaceonigra* ; FLEISCHER, p. 141, Wien. ent. Z. xi ; *C. songorica*, œdeagus of ; WEISE, p. 139, Deutsche e. Z. 1892.
- C. abchasica*, p. 405, *rosti*, *fuscicornis*, p. 406, Caucasus, WEISE, Deutsche e. Z. 1892 ; *C. sogdiorum*, p. 138, *cyrtonoides*, p. 139 (this altered to *cyrtonastes*, p. 413, *t. c.*), Turkestan, WEISE, *t. c.* ; *C. corrugata*, S. W. Africa, PÉRINGUEY, p. 87, Tr. S. African Phil. Soc. vi (2) : n. spp.
- Cladocera spectabilis*, p. 87, *simplex*, p. 88, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) : n. spp.
- Cleoporus lefevrei*, Bengal, DUVIVIER, p. 414, Ann. Ent. Belg. xxxvi ; *C. birmanicus*, p. 914, *plagiatus*, p. 915, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Cleorina jacobyi*, Bengal, DUVIVIER, p. 415, Ann. Ent. Belg. xxxvi, n. sp.
- Cneorane braeti*, Bengal, DUVIVIER, p. 435, Ann. Ent. Belg. xxxvi ; *C. subænea*, p. 945, *orientalis*, p. 946, *fecæ*, p. 947, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Cænobius birmanicus*, Burma, JACOBY, p. 889, Ann. Mus. Genov. (2) xii, n. sp.
- Colaspoides sublævicollis*, p. 417, *bengalensis*, p. 418, E. India, DUVIVIER, Ann. Ent. Belg. xxxvi ; *C. violaceipennis*, *opacicollis*, p. 229, *viridimicans*, p. 230, N. America, HORN, Tr. Am. Ent. Soc. xix : n. spp.
- Colasposoma aruwimiense*, Centr. Africa, GAHAN, p. 91, P. Z. S. 1892 ; *C. parvulum*, Transvaal, LEFÈVRE, p. 42, Tr. S. African Phil. Soc. vi (2) : n. spp.
- Copa*, subg. (n. ?) of *Orthaulaca*, with *O. (C.) kunowi*, n. sp. ?, E. Africa, WEISE, Deutsche e. Z. 1892, pp. 397, 398.
- Coptocyclus catenata*, Boh., note on ; WEISE, p. 352, Deutsche e. Z. 1892.
- Coraiia apicicornis*, Mexico, JACOBY, p. 324, pl. xliii, fig. 6, Biol. Centr. Am. Col. vi (1 supp.), n. sp.

- Corynodes bonnyi*, Centr. Africa, GAHAN, p. 91, P. Z. S. 1892 ; *C. insignis*, Zambezi, LEFÈVRE, p. 43, Tr. S. African Phil. Soc. vi ; *C. dilaticollis*, p. 916, *birmanicus*, p. 917, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Coscinoptera seminuda*, Arizona, HORN, p. 13, Tr. Am. Ent. Soc. xix, n. sp.
- Crepidodera orientalis, obscurolfasciata*, Burma, JACOBY, p. 933, Ann. Mus. Genov. (2) xii, n. spp.
- Crioceris koltzei*, Turkestan, WEISE, p. 131, Deutsche e. Z. 1892 ; *C. litigiosa*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) p. 82 ; *C. humeralis*, Burma, JACOBY, p. 874, Ann. Mus. Genov. (2) xii ; *C. aterrima*, Mexico, JACOBY, p. 342, Biol. Centr. Am. Col. vi (1 supp.) : n. spp.
- Cryptocephalus sanguinolentus*, Scop., invalidity of the species ; WEISE, p. 414, Deutsche e. Z. 1892.
- C. duvivieri*, p. 134, *placidus*, p. 135, *personatus*, p. 136, *negligens*, p. 137, Turkestan, WEISE, Deutsche e. Z. 1892 ; *C. scutellatus, dohrni*, pl. xxxix, fig. 1, Madagascar, JACOBY, p. 566, P. Z. S. 1892 ; *C. emphractus*, p. 84, *strenuus*, p. 85, S. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) ; *C. nagpurensis*, p. 400, *suavis*, p. 401, *laterimaculatus*, p. 403, *fraternus*, p. 404, Bengal, DUVIVIER, Ann. Ent. Belg. xxxvi ; *C. nigriceps, semimarginatus*, Indo-China, ALLARD, p. 232, N. Arch. Mus. Paris (3) iii ; *C. angulatofasciatus, gestroi*, p. 890, *feæ*, p. 891, *flavicinctus*, p. 892, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Cynorta violacea*, p. 970, *subænea*, p. 971, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Cyphotarsis*, n. g., near *Scelida*, for *C. niger*, n. sp., Mexico, JACOBY, p. 339, Biol. Centr. Am. Col. vi (1 supp.).
- Demotina semifasciata*, Burma, JACOBY, p. 906, Ann. Mus. Genov. (2) xii, n. sp.
- Derectis*, Clark, = (*Antipha*, Baly) ; JACOBY, Ent. xxv, p. 162.
- Derocrepis pubipennis*, Araxes Valley, REITTER, p. 154, Wien. ent. Z. xi, n. sp.
- Diabrotica smithi, peregrina*, pl. xliii, fig. 12, p. 330, *guerreroensis*, fig. 13, *blattoides*, p. 331, *quatuor-decimpunctata*, fig. 14, *semiopaca, ribbei*, p. 332, *D. ? antennata*, fig. 15, p. 333, Centr. America, JACOBY, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Diacantha lugubris, opulenta*, S.W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2) ; *D. balteata*, Transvaal, PÉRINGUEY, p. 133, *t. c.* : n. spp.
- Diapromorpha cerulea*, p. 877, *melanocephala, gigantea*, p. 878, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Dioryctus castaneus*, Burma, JACOBY, p. 888, Ann. Mus. Genov. (2) xii, n. sp.
- Diphaulacosoma*, n. g., *Halticinæ*, for *D. lævipenne*, n. sp., Madagascar, JACOBY, p. 574, pl. xxxix, fig. 8, P. Z. S. 1892.
- Donaciini* : tabulation of the Netherlands species ; EVERTS, Tijdschr. Ent. xxxv, pp. 31-58.

- Donacia* and *Plateumaris*: characters of the groups and species of the Old World; JACOBSON, pp. 412-437, Hor. Ent. Ross. xxvi. *D. sericea*: abnormal coloration in; PAULCKE, Deutsche e. Z. 1892, p. 416.
- D. australasie*, Queensland, BLACKBURN, p. 235, Tr. R. Soc. S. Austr. xv, n. sp.
- Doryida* and *D. mouhoti*, redefined; JACOBY, pp. 989 & 990, Ann. Mus. Genov. (2) xii.
- Downesia grandis*, p. 241, *elegans*, p. 242, *longipennis*, p. 243, Burma, GESTRO, Ann. Mus. Genov. (2) x, n. spp.
- Echtrusia*, n. g., near *Eurysthenes*, for *E. rhomboidea*, n. sp., Cape Town; LEFÈVRE, p. 41, Tr. S. African Phil. Soc. vi.
- Enneamera birmanica*, *limbatipennis*, Burma, JACOBY, p. 935, Ann. Mus. Genov. (2) xii, n. spp.
- Erystus podagroides*, Ceram, p. 390, *villicus*, Bangkei, p. 391, WEISE, Deutsche e. Z. 1892, n. spp.
- Eulychius nigritarsis*, Madagascar, JACOBY, p. 567, P. Z. S. 1892, n. sp.
- Eumelepta*, n. g., near *Ergana*, for *E. biplagiata*, n. sp., Burma, JACOBY, p. 988, Ann. Mus. Genov. (2) xii.
- Eumolpini*, of N. America, revised and tabulated; HORN, Tr. Am. Ent. Soc. xix, pp. 195-234.
- Eurispia lorice*, New Guinea, GESTRO, p. 1016, Ann. Mus. Genov. (2) x; *E. nigripes*, S. Australia, *simplex*, Victoria, *fraterna*, S. Australia, BLACKBURN, p. 68, Tr. R. Soc. S. Austr. xv, n. spp.
- Eurydemus metallicus*, Madagascar, JACOBY, p. 570, P. Z. S. 1892; *E. depressus*, Zambezi, LEFÈVRE, p. 42, Tr. S. African Phil. Soc. vi: n. spp.
- Euryope notabilis*, S. W. Africa, PÉRINGUEY, p. 86, Tr. S. African Phil. Soc. vi (2), n. sp.
- Euryscopa pusilla*, Texas, p. 16, *subtilis*, California, p. 17, HORN, Tr. Am. Ent. Soc. xix, n. spp.
- Eustetha varians*, Indo-China, ALLARD, p. 233, N. Arch. Mus. Paris (3) iii, n. sp.
- Fidia cana*, Texas, HORN, p. 199, Tr. Am. Ent. Soc. xvi, n. sp.
- Galeruca*, Geoff., = (*Adimonia*, Laich.); WEISE, p. 414, Deutsche e. Z. 1892. *G. xanthomelena*, habits, &c.; SMITH, Canad. Ent. xxiv, pp. 246-250: habits and life-history; RILEY, pp. 282 & 286, Canad. Ent. xxiv.
- Galerucella albopilosa*, Burma, JACOBY, p. 969, Ann. Mus. Genov. (2) xii; *G. celebensis*, Celebes, WEISE, p. 404, Deutsche e. Z. 1892; *G. amabilis*, Mexico, pl. xliii, fig. 11, *terminalis*, Panama, JACOBY, p. 327, Biol. Centr. Am. Col. vi (1 supp.): n. spp.
- Galerusoma*, n. g., near *Mimastra*, for *G. apicicorne*, n. sp., Madagascar; JACOBY, p. 578, P. Z. S. 1892.
- Gonophora parvula*, p. 237, *rugicollis*, p. 238, Burma, GESTRO, Ann. Mus. Genov. (2) x; *G. modiglianii*, Engano, GESTRO, p. 793, *op. cit.* xii: n. spp.

- Gynandrophthalma*, 11-notata, p. 132, *punctatissima*, *viridiceps*, p. 133, Turkestan, WEISE, Deutsche e. Z. 1892; *G. laticollis*, Bengal, DUVIVIER, p. 399, Ann. Ent. Belg. xxxvi; *G. mandarina*, China, LEFÈVRE, p. xciv, Bull. Soc. Ent. Fr. lxi; *G. pictipennis*, p. 883, *decemnotata*, *octomaculata*, p. 884, *birmanica*, p. 885, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Haltica semenowi*, p. 462, *weisei*, = (*laviuscula*, Weise), *balassogloi*, p. 463, Central Asia, JACOBSON, Hor. Ent. Ross. xxvi, n. spp.
- Haplosonyx rufipennis*, Pedong, DUVIVIER, p. 439, Ann. Ent. Belg. xxxvi; *H. orientalis*, p. 962, *ornata*, p. 963, *inornatus*, *varipes*, p. 964, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Hemyloticus*, n. g., *Typophorinæ*, p. 571, for *H. geniculatus*, n. sp., Madagascar, p. 572, pl. xxxix, fig. 6; JACOBY, P. Z. S. 1892.
- Heteraspis viridis*, Burma, JACOBY, p. 86, Ent. xxv, Supp.; *H. parvula*, *nitida*, p. 909, *bhamoensis*, p. 910, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Hispidæ* of Burma, with many notes; GESTRO, Ann. Mus. Genov. (2) x, pp. 225-268.
- Hispa elegantula*, Bengal, DUVIVIER, p. 447, Ann. Ent. Belg. xxxvi; *H. megacantha*, p. 249, *cariana*, p. 251, *maculata*, p. 252, *brevicuspis*, p. 253, *discicollis*, p. 254, *doriæ*, p. 256, *monticola*, p. 257, *minuta*, p. 259, *paronæ*, p. 260, *xanthospila*, p. 261, *platyprioides*, p. 262, *multifida*, p. 263, GESTRO, Ann. Mus. Genov. (2) x; *H. rubus*, New Guinea, GESTRO, p. 1019, Ann. Mus. Genov. (2) x : n. spp.
- Homophæta simulans*, pl. xlii, figs. 24 & 25, *violacea*, Mexico, JACOBY, p. 316, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Hoplacerus*, n. g., near *Diphaulaca*, for *H. tibialis*, n. sp., Mexico, pl. xliii, fig. 21, JACOBY, p. 344, Biol. Centr. Am. Col. vi (1 supp.).
- Hylaspoides*, n. g., near *Hylaspes*, p. 443, for *H. magnifica*, n. sp., Sikkim, p. 444; DUVIVIER, Ann. Ent. Belg. xxxvi.
- Hyperacantha flavonigra*, var. described; GAHAN, p. 92, P. Z. S. 1892.
- Hyperaxis distincta*, Bengal, DUVIVIER, p. 411, Ann. Ent. Belg. xxxvi, n. sp.
- Hyphænia submetallica*, Burma, JACOBY, p. 985, Ann. Mus. Genov. (2) xii, n. sp.
- Hyphasis signata*, Bengal, DUVIVIER, p. 429, Ann. Ent. Belg. xxxvi; *H. distincta*, p. 936, *intermedia*, *inornata*, p. 937, *balyi*, p. 938, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Hypolampsis inornata*, Mexico, JACOBY, p. 323, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Icogmus nigromaculatus*, Madagascar, JACOBY, p. 569, pl. xxxix, fig. 5, P. Z. S. 1892, n. sp.
- Konbirella*, n. g., *Galerucinæ*, for *K. cardoni*, n. sp., Bengal; DUVIVIER, p. 438, Ann. Ent. Belg. xxxvi.
- Labidostomis glycyrrhizæ*, note on; BECKER, p. 70, Bull. Mosc. 1892.
- L. urticarum*, China, FRIVALDSZKY, p. 119, Term. füzetek, xv, n. sp.

- Lactica bipustulata*, Burma, JACOBY, p. 919, Ann. Mus. Genov. (2) xii ;  
*L. vittatipennis*, p. 345, pl. xliii, fig. 22, *hidalgoensis*, *L.?* *varicornis*,  
 fig. 24, p. 346, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.) :  
 n. spp.
- Lema melanopa*, habits ; VERHOEFF, p. 298, Ent. Nachr. xviii ; *L. sayi*,  
 habits ; RICHARDSON, p. 240, P. E. Soc. Wash. ii.
- L. rugicollis*, *madagascariensis*, Madagascar, JACOBY, p. 565, P. Z. S. 1892 ;  
*L. pulchella*, S. W. Africa, PÉRINGUEY, p. 82, Tr. S. African Phil.  
 Soc. vi (2) ; *L. mashuana*, S. Africa, PÉRINGUEY, p. 133, t. c. ; *L.*  
*robusta*, p. 869, *mandibularis*, p. 870, *dimidiatipennis*, p. 871, *obscuri-*  
*tarsis*, *birmanica*, p. 872, *fecæ*, *palonensis*, p. 873, Burma, JACOBY, Ann.  
 Mus. Genov. (2) xii ; *L. centromaculata*, Nias I., WEISE, p. 386,  
 Deutsche e. Z. 1892 ; *L. smithi*, *fulvipes*, p. 341, *quinquelineata*,  
*sponsa*, p. 342, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.) :  
 n. spp.
- Lina* : minute structure of elytra ; HOFFBAUER (405).
- Longitarsus rangoonensis*, p. 920, *birmanicus*, p. 921, Burma, JACOBY, Ann.  
 Mus. Genov. (2) xii, n. spp.
- Luperodes braeti*, Bengal, DUVIVIER, p. 437, Ann. Ent. Belg. xxxvi ; *L.*  
*impressipennis*, p. 950, *subrugosus*, *tarsalis*, p. 951, *pygidialis*, p. 952,  
 Burma, JACOBY, Ann. Mus. Genov. (2) xii ; *L. salvini*, Guatemala,  
 JACOBY, p. 336, Biol. Centr. Am. Col. vi (1 supp.) : n. spp.
- Luperomorpha vittata*, p. 427, *nigripennis*, *albofasciata*, p. 428, Bengal,  
 DUVIVIER, Ann. Ent. Belg. xxxvi : n. spp.
- Luperus tenuelimbatus*, Obock, FAIRMAIRE, p. 126, Rev. d'Ent. xi ; *L.*  
*constricticollis*, Burma, JACOBY, p. 949, Ann. Mus. Genov. (2) xii :  
 n. spp.
- Macetes peringueyi*, S. Africa, LEFÈVRE, p. 41, Tr. S. African Phil.  
 Soc. vi, n. sp.
- Macrima abdominalis*, varietal note ; JACOBY, p. 88, Ent. xxv (Supp.).
- Malacorhinus cobanensis*, pl. xliii, fig. 18, *exclamationis*, fig. 19, Central  
 America, JACOBY, p. 336, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Malacosoma sikoræ*, *aterrimum*, p. 575, *flavicorne*, p. 576, pl. xxxix, fig. 12,  
 Madagascar, JACOBY, P. Z. S. 1892 ; *M. nigricolle*, Burma, JACOBY,  
 Ann. Mus. Genov. (2) xii : n. spp.
- Malaxia pallipes*, Burma, JACOBY, p. 969, Ann. Mus. Genov. (2) xii,  
 n. sp.
- Mandarella*, n. g., *Agelasticites*, p. 433, for *M. nagpurensis*, n. sp., Bengal,  
 p. 434 ; DUVIVIER, Ann. Ent. Belg. xxxvi.
- Mastostethus angustovittatus*, Mexico, JACOBY, p. 343, Biol. Centr. Am. Col.  
 vi (1 supp.), n. sp.
- Megalognatha bohemani*, = (*Cneorane foveicollis*, Jac.), *M. elegans*, =  
 (*Apophyllia elegantula*, Jac.) ; JACOBY, Ent. xxv, p. 162.
- Megalopus basalis*, Mexico, JACOBY, p. 344, Biol. Centr. Am. Col. vi  
 (1 supp.), n. sp.
- Megalostomis* : characters of, N. American ; HORN, p. 11, Tr. Am. Ent.  
 Soc. xix.

- Megamerus mandibularis*, N. W. Australia, BLACKBURN, p. 67, Tr. R. Soc. S. Austr. xv, n. sp.
- Melasoma populi*, n. var., *janaceki*; REITTER, p. 240, Wien. ent. Z. xi.
- Melitonoma decorata*, S. W. Africa, PÉRINGUEY, p. 84, Tr. S. African Phil. Soc. vi (2), n. sp.
- Menippus aeneipennis*, Celebes, WEISE, p. 404, Deutsche e. Z. 1892, n. sp.
- Menius distant*, Transvaal, JACOBY in Distant, Naturalist Transvaal, p. 205, pl. i, fig. 6, n. sp.
- Merista cardoni*, E. India, DUVIVIER, p. 440, Ann. Ent. Belg. xxxvi, n. sp.
- Mesodera brevicollis*, Mexico, JACOBY, p. 347, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Metachroma aeneicollis*, p. 211, *longulum*, p. 212, *aterrimum*, p. 214, *terminale*, p. 215, *parallelum*, p. 217, N. America, HORN, Tr. Am. Ent. Soc. xix, n. spp.
- Metacoryna levipennis*, Guatemala, *pretiosa*, Mexico, pl. xliii, fig. 20, JACOBY, p. 338, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Metacycla rugipennis*, Mexico, JACOBY, p. 337, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Metaxyonycha circumcincta*, N. America, HORN, p. 228, Tr. Am. Ent. Soc. xvi, n. sp.
- Mimastra longicornis*, p. 944, *hirsuta*, p. 945, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Mimastroides*, n. g., *Galerucinae*, p. 577, for *M. madagascariensis*, n. sp., Madagascar, pl. xxxix, fig. 11, p. 578; JACOBY, P. Z. S. 1892.
- Monolepta marginata*, p. 981, *birmanensis*, p. 982, *alboplagiata*, *gestroi*, p. 983, *fee*, p. 984, Burma, JACOBY, Ann. Mus. Genov. (2) xii; *M. benallæ*, *froggatti*, Victoria, BLACKBURN, p. 549, P. Linn. Soc. N.S.W. (2) vi; *M. morosa*, Mexico, JACOBY, p. 340, Biol. Centr. Am. Col. vi (1 supp.): n. spp.
- Monoplatus puncticollis*, Mexico, JACOBY, p. 320, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Mouhotina birmanica*, Burma, JACOBY, p. 913, Ann. Mus. Genov. (2) xii, n. sp.
- Neobrotica pallida*, *ruatanæ*, pl. xliii, fig. 17, Mexico, JACOBY, p. 335, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Neolepta ruficollis*, Burma, JACOBY, p. 992, Ann. Mus. Genov. (2) xii, n. sp.
- Nestinus longicornis*, Mexico, JACOBY, p. 324, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Nirina*, n. g., near *Pachytoma*, for *N. jacobyi*, n. sp., E. Africa; WEISE, p. 403, Deutsche e. Z. 1892.
- Nisotra nigratarsis*, *klugii*, Madagascar, JACOBY, p. 572, P. Z. S. 1892; *N. papuensis*, New Guinea, TRYON (1953): n. spp.
- Nodina tarsalis*, Bengal, DUVIVIER, p. 409, Ann. Ent. Belg. xxxvi; *N. parvula*, p. 902, *robusta*, p. 903, *birmanica*, p. 904, Burma, JACOBY, Ann. Mus. Genov. (2) xii: n. spp.

- Nodonota clypealis*, N. America, HORN, p. 232, Tr. Am. Ent. Soc. xix, n. sp.  
*Nodostoma variabile*, p. 406, *angulicolle*, p. 408, Bengal, DUVIVIER, Ann. Ent. Belg xxxvi ; *N. bellum*, p. 895, *bhamoense*, p. 896, *semicæruleum*, *feæ*, p. 897, *birmanicum*, p. 898, *capitatum*, *bimaculicolle*, p. 899, *denticolle*, p. 900, *violaceofasciatum*, p. 901, *semipurpureum*, p. 902, Burma, JACOBY, Ann. Mus. Genov. (2) xii ; *N. indicum*, Burma, *multicostata*, p. 86, *apicipes*, p. 87, Sumatra, JACOBY, Ent. xxv (Supp.) : n. spp.
- Nonarthra variabilis*, varr. described ; DUVIVIER, p. 423, Ann. Ent. Belg. xxxvi.
- N. albofasciata*, DUVIVIER, p. 424, Ann. Ent. Belg. xxxvi, n. sp.
- Ochralea rufobasalis*, p. 977, *pallida*, p. 978, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Odontionopa discolor*, Cape Town, LEFÈVRE, p. 39, Tr. S. African Phil. Soc. vi, n. sp.
- Edionychis clypeata*, Madagascar, JACOBY, p. 574, P. Z. S. 1892 ; *Æ. clypeata*, p. 317, *haroldi*, *durangoensis*, p. 318, *pavonina*, p. 319, pl. xliii, fig. 1, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.) : n. spp.
- Oides basalis*, *flavolimbatus*, New Guinea, TRYON (953), n. spp.
- Omotyphus suturalis*, pl. xliii, fig. 3, p. 322, *carinatus*, fig. 4, p. 323, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Ootheca modesta*, Transvaal, GAHAN in Distant, Naturalist Transvaal, p. 206, pl. i, fig. 11, n. sp.
- Ophræa opaca*, Mexico, JACOBY, p. 327, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Orsodacna atra*, variation and synonyms ; HORN, p. 6, Tr. Am. Ent. Soc. xix : variation, HAMILTON, p. 160, Canad. Ent. xxiv.
- Orthaulaca*, n. g. (with 5 subgg.), type, *Galeruca similis*, Ol. ; WEISE, p. 393, Deutsche e. Z. 1892.
- Orycephala longipennis*, New Guinea, GESTRO, p. 1017, Ann. Mus. Genov. (2) x, n. sp.
- Pachnephoptrus*, n. g., near *Pachnephorus*, for *P. weisei*, n. sp., Ordubad ; REITTER, p. 153, Wien. ent. Z. xi.
- Pachnephorus plagiatus*, Burma, JACOBY, p. 913, Ann. Mus. Genov. (2) xii, n. sp.
- Pachybrachys nigropunctatus*, *glycyrrhizæ*, distinctive characters ; WEISE, p. 413, Deutsche e. Z. 1892. *P. lecontei*, n. n. for *brevicollis*, Jac., nec Lec. ; JACOBY, p. 348, Biol. Centr. Am. Col. vi (1 supp.).
- Pachygnatha*, n. g., for *Orina dolens*, Kr. ; WEISE, p. 352, Deutsche e. Z. 1892.
- Pachypalpa*, n. g., for *Galeruca luteicornis*, Fab. ; WEISE, p. 392, Deutsche e. Z. 1892.
- Pachytoma dives*, Karsch, = (*Mesodonta submetallica*, Jac.) ; JACOBY, Ent. xxv, p. 162.
- P. obscura*, Centr. Africa, GAHAN, p. 93, P. Z. S. 1892, n. sp.
- Pallena chapuisi*, Cape Town, LEFÈVRE, p. 41, Tr. S. African Phil. Soc. vi, n. sp.

- Parathrylea*, n. g., *Arsipodites*, p. 420, for *P. apicipennis*, n. sp., Bengal, p. 421, DUVIVIER, Ann. Ent. Belg. xxxvi.
- Paria* merged in *Typophorus*; HORN, p. 207, Tr. Am. Ent. Soc. xix.
- Paridea approximata*, p. 430, *livida*, p. 432, DUVIVIER, Ann. Ent. Belg. xxxvi; *P. bifurcata*, *ruficollis*, p. 953, *cornuta*, p. 954, *nigripennis*, p. 955, *foveipennis*, p. 956, *unifasciata*, p. 957, Burma, JACOBY, Ann. Mus. Genov. (2) xii : n. spp.
- Parosides pardalis*, *nigropunctatus*, Burma, JACOBY, p. 918, Ann. Mus. Genov. (2) xii, n. spp.
- Paropsis yilgarnensis*, p. 545, *latipes*, p. 546, *regularis*, p. 547, Australia, BLACKBURN, P. Linn. Soc. N.S.W. (2) vi; *P. rufopicta*, W. Australia, BLACKBURN, p. 237, Tr. R. Soc. S. Austr. xv : n. spp.
- Pausiris strigicollis*, Cape Colony, LEFÈVRE, p. 41, Tr. S. African Phil. Soc. vi, n. sp.
- Pheloticus brunneus*, p. 567, pl. xxxix, fig. 2, *P. ? aeneicollis*, fig. 4, *bifasciatus*, fig. 3, p. 568, Madagascar, JACOBY, P. Z. S. 1892, n. spp.
- Phyllotreta dentifera*, S. France, GUILLEBEAU, Échange, i, No. 7; *P. chotanica*, Bengal, DUVIVIER, p. 426, Ann. Ent. Belg. xxxvi : n. spp.
- Physimerus elongatulus*, p. 321, *flavopilosus*, p. 322, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Phytodecta linneana*, Schrank, synonymical note; WEISE, p. 414, Deutsche e. Z. 1892.
- Piasus*, n. g., near *Lactica*, for *P. fulvus*, n. sp., Mexico, pl. xliii, fig. 25; JACOBY, p. 345, Biol. Centr. Am. Col. vi (1 supp.).
- Pilemostoma*, n. subg. of *Cassida*; DESBROCHERS, p. 14, Supp., Frelon, i.
- Platypria acanthion*, p. 245, *ericulus*, p. 247, Burma, GESTRO, Ann. Mus. Genov. (2) x, n. spp.
- Platyzantha africana*, Congo, DUVIVIER, p. 167, Ann. Ent. Belg. xxxvi; *P. indica*, Bengal, DUVIVIER, p. 445, Ann. Ent. Belg. xxxvi : n. spp.
- Plectroscelis olliffi*, N. S. Wales, BLACKBURN, p. 548, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Podagrica decolorata*, Congo, DUVIVIER, p. 60, Ann. Ent. Belg. xxxvi, n. sp.
- Pæcilomorpha binotata*, S. W. Africa, PÉRINGUEY, Tr. S. African Phil. Soc. vi (2), p. 83, n. sp.
- Prionispa pulchra*, Borneo, GORHAM, p. 84, pl. iv, fig. 2, P. Z. S. 1892, n. sp.
- Pseudocassida*, n. subg. of *Cassida*, DESBROCHERS, p. 15 (Supp.) Frelon, i.
- Pseudocolaspis hottentota*, *variegata*, *brachiata*, p. 39, *gracilipes*, *viridana*, p. 40, S. Africa, LEFÈVRE, Tr. S. African Phil. Soc. vi; *P. bengalensis*, India, DUVIVIER, p. 412, Ann. Ent. Belg. xxxvi : n. spp.
- Pseudocrania*, n. g., near *Monolepta*, for *P. latifrons*, n. sp., Quango; WEISE, p. 400, Deutsche e. Z. 1892.
- Pseudodiabrotica*, n. g., near *Microbrotica*, for *P. metallica*, n. sp., Mexico, pl. xliii, fig. 16; JACOBY, p. 334, Biol. Centr. Am. Col. vi (1 supp.).

- Pseudoides*, n. g., *Agelastinae*, for *P. bivittata*, n. sp., Burma; JACOBY, p. 966, Ann. Mus. Genov. (2) xii.
- Pseudopiomera*, n. g., *Leptotinae*, p. 907, for *P. pallidicornis*, n. sp., Burma, p. 908; JACOBY, Ann. Mus. Genov. (2) xii.
- Pteleon pubescens*, Mexico, JACOBY, p. 337, Biol. Centr. Am. Col. vi (1 supp.), n. sp.
- Rhaphidopalpa bengalensis*, Calcutta, *aruensis*, N. Guinea, *ceramensis*, Borneo, &c., *niasensis*, Sumatra, p. 394, *chinensis*, Shanghai, p. 395, WEISE, Deutsche e. Z. 1892, n. spp.
- Rhembastus dimidiaticornis*, p. 569, *antennatus*, p. 570, Madagascar, JACOBY, P. Z. S. 1892, n. spp.
- Rhinotmetus modestus*, p. 320, *minutus*, p. 321, Mexico, JACOBY, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Rhyparida striaticollis*, Madagascar, JACOBY, p. 571, pl. xxxix, fig. 7, P. Z. S. 1892; *R. aterrima*, Burma, JACOBY, p. 911, Ann. Mus. Genov. (2) xii; *R. mastersi*, Queensland, BLACKBURN, p. 236, Tr. R. Soc. S. Austr. xv : n. spp.
- Rupilia rugulosa*, Queensland, BLACKBURN, p. 238, Tr. R. Soc. S. Austr. xv, n. spp.
- Rybakowia*, n. g., near *Haltica*, p. 465, for *R. pyriformis*, = (*globoicollis*, Ryb.), n. sp., Amdo, p. 466; JACOBSON, Hor. Ent. Ross. xxvi.
- Sastra fulvicornis*, Burma, JACOBY, p. 958, Ann. Mus. Genov. (2) xii, n. sp.
- Sastroides crassipalpis*, referred to *Sastra*; JACOBY, p. 958, Ann. Mus. Genov. (2) xii.
- S. parvula*, Burma, JACOBY, p. 959, Ann. Mus. Genov. (2) xii, n. sp.
- Saxinis politula, speculifera*, California, HORN, p. 10, Tr. Am. Ent. Soc. xix, n. spp.
- Scelidopsis* (?) *violacea*, Mexico, JACOBY, p. 339, Biol. Centr. Am. Col. vi, (1 supp.), n. sp.
- Sebaethe quadrimaculata, elongata*, p. 922, *immaculata*, p. 923, *S. ? recticollis*, p. 924, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Sermylodes dilaticornis*, Sumatra, JACOBY, p. 88, Ent. xxv (Supp.), n. sp.
- Solenia abdominalis*, p. 986, *integricollis*, p. 987, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Sphenoraia imitans*, Burma, JACOBY, p. 961, Ann. Mus. Genov. (2) xii, n. sp.
- Sphærarthra*, subg. (n. ?) of *Orthaulaca*; WEISE, p. 396, Deutsche e. Z. 1892.
- Sphæroderma antennata*, p. 925, *nigrita*, p. 926, *birmanica, acutangula*, p. 927, *varipennis*, p. 928, *discicollis, terminata*, p. 929, *pallidicornis*, p. 930, Burma, JACOBY, Ann. Mus. Genov. (2) xii, n. spp.
- Sphærometopa intermedia*, Burma, JACOBY, p. 925, Ann. Mus. Genov. (2) xii, n. sp.
- Spilocephalus viridipennis*, var. described and figured; GAHAN in Distant, Naturalist Transvaal, p. 207, pl. i, fig. 12.
- S. distanti*, Transvaal, GAHAN in Distant, Naturalist Transvaal, p. 208, n. sp.

- Spilopyra olliffi*, N. S. Wales, BLACKBURN, p. 544, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Sternoplatys piceus*, Fab., = (*pascoei*, Baly); DUVIVIER, p. 374, Ann. Ent. Belg. xxxvi.
- Stethomela caudata*, Queensland, BLACKBURN, p. 237, Tr. R. Soc. S. Austr. xv, n. sp.
- Syagrus rufo-brunneus*, *rugiceps*, Zambezi, LEFÈVRE, p. 43, Tr. S. African Phil. Soc. vi, n. spp.
- Syneta*: characters and synonymy of the N. American species; HORN, pp. 1-5, Tr. Am. Ent. Soc. xix.
- Temnaspis flavicornis*, p. 875, *nigroplagiata*, p. 876, Burma, JACOBY, Ann. Mus. Genov. (2) xii; *T. squalidus*, Indo-China, ALLARD, p. 232, N. Arch. Mus. Paris (3) iii : n. spp.
- Theopea nigricollis*, Borneo, JACOBY, p. 87, Ent. xxv (Supp.), n. sp.
- Timarcha arragonica*, Spain, BALBI, Riv. Ital. Sci. Nat. xii, p. 50, n. sp.
- Trichostola cupensis*, S. Africa, LEFÈVRE, p. 42, Tr. S. African Phil. Soc. vi, n. sp.
- Trichotheca basifemorata*, Bengal, DUVIVIER, p. 410, Ann. Ent. Belg. xxxvi, n. sp.
- Trirrhabda vicina*, p. 324, *hogeii*, pl. xliii, fig. 8, *sublavicollis*, fig. 7, p. 325, *semiviridis*, fig. 9, *rugosa*, fig. 10, *guatemalensis*, p. 326, Central America, JACOBY, Biol. Centr. Am. Col. vi (1 supp.), n. spp.
- Tymnes violaceus*, Pennsylvania, HORN, p. 222, Tr. Am. Ent. Soc. xix, n. sp.
- Wallacea inornata*, Engano, GESTRO, p. 792, Ann. Mus. Genov. (2) xii, n. sp.
- Zeugophora*: characters of N. American; HORN, p. 7, Tr. Am. Ent. Soc. xix.

## EROTYLIDÆ.

[Cf. GORHAM (350), REITTER (725), RITSEMA (757).]

- Asmonax*, n. g., near *Encaustes*, for *A. whiteheadi*, n. sp., Borneo, pl. iv, fig. 5; GORHAM, p. 85, P. Z. S. 1892.
- Helota fœæ*, p. 886, *serratipennis*, p. 890, *rotundata*, p. 891, *gestroi*, p. 893, *immaculata*, p. 895, *difficilis*, p. 896, *dohertyi*, p. 898, *notata*, p. 900, *dubia*, p. 901, Burma, RITSEMA, Ann. Mus. Genov. (2) x, n. spp.
- Triplax (Platychna) analis*, Araxes Valley, p. 133, *swanetica*, Caucasus, p. 134, REITTER, Wien. ent. Z. xi, n. spp.

## ENDOMYCHIDÆ.

[Cf. GAHAN (210), GORHAM (350)]

- Amphisternus armatus*, Borneo, GORHAM, p. 86, pl. iv, fig. 3, P. Z. S. 1892, n. sp.
- Ancylopus fuscipennis*, Transvaal, GAHAN in Distant, Naturalist Transvaal, p. 210, pl. iv, fig. 10, n. sp..

*Epipocus cinctus*, metamorphoses ; WICKHAM, Bull. Lab. Iowa, ii, p. 198, pl. i.

*Eumorphus costatus*, ♂ described ; GORHAM, p. 87, P. Z. S. 1892.

*E. tumescens*, p. 86, pl. iv, fig. 4, *lucidus*, p. 87, fig. 1, Borneo, GORHAM, P. Z. S. 1892, n. spp.

## COCCINELLIDÆ.

[Cf. BLACKBURN (93, 94), BLAISDELL (97), FRIVALDSZKY (309), GORHAM (347, 348, 351), SICARD (846), WEISE (402, 993, 995, 997, 1001).]

Habit of congregating of *Coccinellidæ*, discussion ; P. E. Soc. Wash. ii, pp. 169 & 170.

Weise's "Bestimmungs-Tabellen" of European *Coccinellidæ*, translated into French, with notes by SICARD & BEDEL ; SICARD, Abeille, xxviii, pp. 1-80.

*Adonia weisei*, China, FRIVALDSZKY, p. 120, Term. füzetek, xv, n. sp.

*Bucolinus*, n. g., near *Bucolus*, for *B. longicornis*, n. sp., Victoria ; BLACKBURN, p. 252, Tr. R. Soc. S. Austr. xv.

*Bucolus convexus*, New S. Wales, BLACKBURN, p. 72, Tr. R. Soc. S. Austr. xv, n. sp.

*Chilocorides* : characters of the group noticed ; GORHAM, p. 174, Biol. Centr. Am. Col. vii.

*Chilocorus bipustulatus* and *renipustulatus*, destroying *Coccidæ* ; BEDEL, p. 2, Abeille, xxviii.

*C. chalybeatus*, Kiu-Kiang, GORHAM, Ent. xxv (Supp.), p. 84 ; *C. flavidus*, Queensland, BLACKBURN, p. 239, Tr. R. Soc. S. Austr. xv : n. spp.

*Chnootriba antinorii*, Scioa, GORHAM, p. 911, Ann. Mus. Genov. (2) x, n. sp.

*Clanis soror*, Bengal, WEISE, p. 25, Ann. Ent. Belg. xxxvi, n. sp.

*Cleis lynx*, figured, pl. ix, fig. 19 ; GORHAM, Biol. Centr. Am. Col. vii.

*Coccinella 12-maculata*, n. var., *jakolewi* ; WEISE, p. 140, Deutsche e. Z. 1892. *C. septempunctata*, temporary colonies of ; PLATEAU, p. 393, Ann. Ent. Belg. xxxvi.

*Cælophora unicolor*, great variation and synonymy ; WEISE, pp. 20-24, Ann. Ent. Belg. xxxvi.

*C. mastersi*, p. 238, *guttata*, p. 239, Queensland, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.

*Cycloneda sallæi*, pl. ix, fig. 21, *retrospiciens*, pl. x, fig. 2, figured, *rubida*, variation and synonymy noticed, p. 171, *abdominalis*, varr. figured, pl. ix, figs. 22-24, *gilardini*, figured, pl. ix, fig. 25 ; GORHAM, Biol. Centr. Am. Col. vii.

*C. electra*, Guatemala, GORHAM, p. 173, pl. x, fig. 3, Biol. Centr. Am. Col. vii, n. sp.

*Cycloscymnus*, n. g., *Bucolites*, for *C. minutus*, n. sp., New S. Wales ; BLACKBURN, p. 251, Tr. R. Soc. S. Austr. xv.

*Egleis kingi*, MacL., = (*varicolor*, Muls.) ; BLACKBURN, p. 238, Tr. R. Soc. S. Austr. xv.

- Epilachna scioensis*, p. 910, *ægrotæ*, p. 911, Scioa, GORHAM, Ann Mus. Genov. (2) x ; *E. fairmairei*, China, FRIVALDSZKY, p. 121, Term. füzetek, xv ; *E. insignis*, Kiu-Kiang, GORHAM, Ent. xxv (Supp.), p. 84 : n. spp.
- Erithionyæ*, n. g., for *Rhizobius lanosus*, BLACKBURN, p. 259, Tr. R. Soc. S. Austr. xv.
- Gymnoscymnus*, n. g., p. 241, for *G. quadrimaculatus*, n. sp., Australia, p. 242 ; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- Halysia oblongoguttata*, minute structure of elytra ; HOFFBAUER (405).
- H. emaciata*, pl. ix, figs. 12 & 13, *epistictica*, figs. 14 & 15, p. 164, *championi*, pl. x, fig. 1, p. 165, Panama, GORHAM, Biol. Centr. Am. Col. vii, n. spp.
- Harmonia impustulata*, larva and pupa ; PLANET, Le Nat. 1892, p. 178.
- Hyperaspis salaamensis*, E. Africa, WEISE, Deutsche e. Z. 1892, p. 15, n. sp.
- Hypocyrema*, n. g., near *Cyrema*, p. 250, for *H. pauxillum*, n. sp., Australia, p. 251 ; BLACKBURN, Tr. R. Soc. S. Austr. xv.
- Leis axyridis*, n. var., *duodecimsignata* ; FRIVALDSZKY, p. 121, Term. füzetek, xv.
- Lioadalia lenticula*, Kiu-Kiang, GORHAM, Ent. xxv (Supp.), p. 82, n. sp.
- Lipernes subviridis*, New S. Wales, BLACKBURN, p. 72, Tr. R. Soc. S. Austr. xv, n. sp.
- Megilla maculata*, habits ; RILEY, P. E. Soc. Wash. ii, p. 168.
- Midus pygmæus*, Australia, BLACKBURN, p. 261, Tr. R. Soc. S. Austr. xv, n. sp.
- Neda bicolor*, Queensland, BLACKBURN, p. 238, Tr. R. Soc. S. Austr. xv, n. sp.
- Neocalvia areolata*, Panama ; GORHAM, p. 169, pl. ix, fig. 20, Biol. Centr. Am. Col. vii.
- Neohalysia perroudi*, figured ; GORHAM, pl. ix, fig. 11, Biol. Centr. Am. Col. vii.
- Orcus cæruleus*, figured ; GORHAM, pl. x, fig. 4, Biol. Centr. Am. Col. vii.
- O. chalybeus*, early stages, *Ins. Life*, v, p. 42.
- O. punctulatus*, *splendens*, p. 240, *ovalis*, *obscurus*, p. 241, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv, n. spp.
- Ortalia discoidea*, E. India, WEISE, p. 27, Ann. Ent. Belg. xxxvi, n. sp.
- Oryssomus* : *Clypeaster variegatus*, Phil., referred to this ; GERMAIN, p. 261, Act. Soc. Chili, ii.
- Platynaspis*, = (*Microrrhymbus*, Gerst.) ; WEISE, p. 413, Deutsche e. Z. 1892. *P. abdominalis*, n. n. for *rufipennis*, Weise ; WEISE, l.c.
- Psyllobora confluens*, fig. 18, *luctuosa*, fig. 16, *roei*, fig. 17, figured, pl. ix, noticed, pp. 165, 168 ; GORHAM, Biol. Centr. Am. Col. vii.
- Ptychanatis axyridis*, variation ; GORHAM, Ent. xxv (Supp.), p. 82.
- Rhizobius fugax*, *dorsalis*, p. 70, *coccus*, *lanosus*, *pulcher*, p. 71, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv ; *R. nigronotatus*, *ornatipennis*, p. 253, *speculifer*, *toowoombæ*, p. 254, *satelles*, *aurantii*, p. 255, *fasciculatus*, *apicalis cæruleus*, p. 256, *plebeius*, p. 257, Australia, BLACKBURN, t. c. : n. spp.

- Rodolia* : characters of ; WEISE, p. 25, Ann. Ent. Belg. xxxvi.  
*R. breviuscula*, E. India, *pumila*, Hong-Kong, WEISE, p. 26, Ann. Ent. Belg., n. spp.  
*Scymnoides koebeli*, New S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xv, p. 69, n. sp.  
*Scymnomorpha*, n. g., near *Pullus*, for *S. duplopunctulata*, n. sp., Victoria; BLACKBURN, Tr. R. Soc. S. Austr. xv.  
*Scymnus koebeli*, variation ; BLACKBURN, p. 242, Tr. R. Soc. S. Austr. xv.  
*S. (Nephus) jakolewi*, Irkutsk, WEISE, p. 141, Deutsche e. Z. 1892 ; *S. (Nephus) severini*, p. 27, *S. (Pullus) dorsualis*, p. 28, E. India, WEISE, p. 28, Ann. Ent. Belg. xxxvi ; *S. sydneyensis*, *australasiæ*, p. 243, *jocosus*, *cucullifer*, p. 244, *victoriensis*, *subelongatulus*, p. 245, *sublatus*, *pretiosus*, *inaffectatus*, p. 246, *whittonensis*, *S. (n. g. ?) queenslandicus*, p. 247, *S. vagans*, p. 248, Australia, BLACKBURN, Tr. R. Soc. S. Austr. xv : n. spp.  
*S. lophanthæ*, California, BLAISDELL, Ent. News, iii, p. 51.  
*Semichnoodes*, n. g., near *Bucolus*, p. 15, for *S. kunowi*, n. sp., E. Africa, p. 16 ; WEISE, Deutsche e. Z. 1892.  
*Semiadalia heydeni*, Margelan, WEISE, p. 110, Deutsche e. Z. 1892, n. sp.  
*Serangium maculigerum*, Queensland, *hirtuosum*, New S. Wales, BLACKBURN, p. 73, Tr. R. Soc. S. Austr. xv, n. spp.  
*Sumnius*, n. g., near *Rhizobius* for *S. renardi*, p. 29, *cardoni*, p. 30, n. spp., E. India ; WEISE, Ann. Ent. Belg. xxxvi.  
*Trichorcus*, n. g., near *Orcus*, for *T. cinctus*, n. sp., New S. Wales, BLACKBURN, Tr. R. Soc. S. Austr. xv, p. 73.  
*Verania cardoni*, E. India, WEISE, p. 19, Ann. Ent. Belg. xxxvi, n. sp.

## CORYLOPHIDÆ.

- Clypeaster variegatus*, Phil., referred to *Oryssomus* in *Coccinellidæ* ; GERMAIN, p. 261, Act. Soc. Chili, ii.

## (B.) *HYMENOPTERA.*

Structure of ovipositor ; MARLATT (581).

Retardation of appearance of *Hymenoptera* after transportation to summit of Mont Ventoux ; NICOLAS, p. 567, CR. Ass. Fr. Sci. xx, pt. 2.

Early stages of embryology ; HENKING (396).

Mode of union of abdominal segments ; CARLET (157).

Characters for the determination of the families of *Hymenoptera* ; FREY-GESSNER, Bull. Soc. Murith. xiii, pp. 37-48, pls. i, ii.

## *ACULEATA.*

[*Cf.* ANDRÉ (12, 13), BENTON (54), BENZI (55), BRANCSIK (115), BUYSSON & MARSHALL (149), CAMERON (151), COBELLI (176), DALLA TORRE (197), EMERY (249-254), FOREL (287-297, 475), FOX (298-306), FREY-GESSNER (307, 308), GRÄFFE (358), HANDLIRSCH (386, 387), KATURIC (473, 474), KELLER (475), KOHL (501), KRIEGER (527), MAGRETTI (575, 576), MARCHAL (580), MEDINA (598), MOCSARY (615), MORAWITZ (624), NERÉN (631), NICOLAS (639), PERGANDE (671), PERKINS (674), REED (719), RILEY (745), ROBERTSON (768), SAUSSURE (210, 793), SCHULTHESS-RECHBERG (803), SERGI (840), STADELMANN (883), THEOBALD (920), VACHAL (959, 960), VERHOEFF (961, 962, 963, 964, 966, 967, 968, 969), WAGNER (981), WASMANN (984, 986, 987), WILLISTON (1012), WROUGHTON (1018).]

The use of the asperities on pupæ ; VERHOEFF (962).

Position of the sexes in pupal cells ; relative numbers of the sexes, and time of their appearance ; VERHOEFF (963, 964).

Catalogue of Australian *Aculeata*, pt. ii ; FROGGATT (312).

In Saussure's great work recorded below, by an unfortunate oversight, the novelties are not indicated in a sufficiently definite manner : the letter "n" being all that is used, and apparently indicating species or genera described by the author, either in this work or previously. The Recorder begs to point out this in palliation of any errors he may have fallen into.

## *APIDÆ.*

Mode of secretion of wax ; MAYER, MT. z. Stat. Neap. x, pp. 509, &c., pl. xxxii, figs. 4, 4a.

Revision of the bees described in Gray's Chili ; REED (719).

*Andrena mandibularis*, Illinois, ROBERTSON, p. 272, Am. Nat. xxvi, n. sp.

- Anthidium manicatum*, habits ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 710.
- A. buyssoni* (Perez), Caracas, BUYSSON, p. 55, Ann. Soc. Ent. Fr. lxi, n. sp.
- Anthophora parietina*, *personata*, *pilipes*, nests and habits, VERHOEFF, Zool. Jahrb. Syst. vi, pp. 699-703 ; *A. pilipes*, habits of ♂, VERHOEFF, Ent. Nachr. xviii, p. 244.
- A. loczyi*, Tibet, MOCSÁRY, p. 130, Term. füzetek, xv, n. sp.
- Apis mellifica* : workers feeding drones ; COOK, Bull. Dep. Agric. Ent. xxvi, p. 89. Koschewnikoff on male organs, translated in Ann. N. H. (6) ix, p. 185. Distance it flies, BENTON, Ins. Life, iv, p. 319.
- Bombus*, the species of the Valais, with note on economy ; FREY-GESSNER, Bull. Soc. Murith. xiii, pp. 32-36.
- B. silantjewi*, p. 132, *suworzewi*, p. 135, Russia ; MORAWITZ, Hor. Ent. Ross. xxvi, n. spp.
- Calliopsis parvus*, Illinois, ROBERTSON, p. 273, Am. Nat. xxvi, n. sp.
- Camptopœum altaicum*, Russia, MORAWITZ, p. 142, Hor. Ent. Ross. xxvi, n. sp.
- Ceratina cœrulea*, habits ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 736.
- C. nitidula*, Transcaspian region, MORAWITZ, p. 141, Hor. Ent. Ross. xxvi, n. sp.
- Chalicodoma muraria*, parasites ; CARPENTIER, Bull. Soc. L. Nord France, x, p. 328.
- Chelostoma florisomme*, habits ; ALFKEN, p. 209, Ent. Nachr. xviii.
- Cœlioxyx dentigera*, China, MOCSÁRY, p. 131, Term. füzetek, xv, n. sp.
- Colletes* and *Prosopis* to form one family called *Colletidæ* ; VERHOEFF, p. 734, Zool. Jahrb. Syst. vi.
- Epeolus productus* and *rufipes*, distinctions of ♂ ; SAUNDERS, Ent. M. M. xxviii, p. 161. *E. pusillus*, ♂ described ; FOX, Ent. News, iii, p. 29.
- Ecomulopsis neglectus*, Caracas, BUYSSON, p. 55, Ann. Soc. Ent. Fr. lxi, n. sp.
- Halictus cylindricus*, hermaphrodite ; KRIEGER, pp. 137-140, Z. Naturw. lxxv. *H. sexcinctus*, habits ; VERHOEFF, pp. 711-717, Zool. Jahrb. Syst. vi.
- H. sphecodimorphus*, Spain, Oran, *angustifrons*, Algeria, VACHAL, p. xxii, Bull. Soc. Ent. Fr. lxi ; *H. denticollis*, E. Siberia, p. 145, *dmitrijewi*, p. 146, Russia, *monstrificus*, E. Siberia, p. 147, JAKOWLEW, Hor. Ent. Ross. xxvi ; *H. luridipes*, *gibber*, p. cxxxvi, *magretti*, p. cxxxvii, Soudan, VACHAL, Bull. Soc. Ent. Fr. lxi ; *H. reticulatus*, Florida, *hartii*, Illinois, p. 268, *floridanus*, Florida, *pruinosis*, p. 269, *cephalicus*, *obscurus*, p. 270, Illinois, *ashmeadii*, Florida, *illinoensis*, p. 271, *anomalus*, Illinois, *apopkensis*, *longiceps*, Florida, p. 272, ROBERTSON, Am. Nat. xxvi ; *H. clavatus*, Venezuela, BUYSSON, p. 55, Ann. Soc. Ent. Fr. lxi : n. spp.
- Heriades copetica*, Transcaspian Region, MORAWITZ, p. 149, Hor. Ent. Ross. xxvi, n. sp.
- Megachile* : nests of N. American species noticed ; PACKARD, Psyche, vi, p. 340. *M. dufourii*, nest ; ANDRÉ, Échange, i, No. 7, p. 1.

- M. rhinoceros*, China, MOCSÁRY, p. 131, Term. füzetek, xv, n. sp.  
*Melissodes palustris*, Illinois, ROBERTSON, p. 273, Am. Nat. xxvi, n. sp.  
*Melitura pictipes*, *spinosa*, Russia, MORAWITZ, Hor. Ent. Ross, xxvi, n. spp.  
*Nomada baldiniana*, Italy, BENZI, Atti Soc. Mod. (3) xi, p. 220, n. sp.  
*Osmia emarginata*, habits, architecture; VERHOEFF, Zool. Jahrb. Syst. vi, p. 703. *A. leucomelana*, habits; VERHOEFF, t. c. p. 736: account of the mode in which its larva is devoured by *Stelis minuta*; VERHOEFF, p. 41, Zool. Anz. xv. *O. tridentata*, nidification and habits; VERHOEFF, Ent. Nachr. xviii, pp. 225-227. *O. simillima*, *pacifica*, nests noticed; PACKARD, Psyche, vi, p. 340.  
*O. (Acanthosmia) gräffei*, Trieste, SCHMIEDEKNECHT, p. 137, Atti Mus. Trieste, viii; *O. friesei*, Dalmatia, VERHOEFF, p. 289, Ent. Nachr. xviii; *O. globicola*, Cape Good Hope, STADELMANN, p. 235, pl. vi, fig. 3, Berl. Ent. Zeit. xxxvii: n. spp.  
*Panurginus herzi*, E. Siberia, MORAWITZ, p. 144, Hor. Ent. Ross. xxvi, n. sp.  
*Prosopis annulatus*, habits of ♂; VERHOEFF, p. 247, Ent. Nachr. xviii; *P. brevicornis*, habits discussed; VERHOEFF, p. 732, Zool. Jahrb. Syst. vi.  
*P. magretti*, Soudan, VACHAL, p. cxxxv, Bull. Soc. Ent. Fr. lxi, n. sp.  
*Rhophites mandibularis*, p. 138, *dispar*, p. 139, Russia, MORAWITZ, Hor. Ent. Ross. xxvi, n. spp.  
*Sphecodes*: *Sabulicola* is a subg. *S. cirsii*, characters; VERHOEFF, p. 63, Berl. Ent. Zeit. xxxvii.  
*Stelis cognata*, Araxes Valley, KOHL, p. 230, Ann. Hofmuseum Wien, vii, n. sp.  
*Tetralomia pygialis*, Venezuela, BUYSSON, p. 54, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Trigona apiformis*, *ochrotrichus*, Venezuela, BUYSSON, p. 54, Ann. Soc. Ent. Fr. lxi, n. spp.  
*Xylocopa virginica*, hibernation of ♂, egg noticed; HOWARD, p. 331, P. E. Soc. Wash. ii.  
*X. gribodoi*, Somaliland, MAGRETTI, p. 959, Ann. Mus. Genov. (2) x, n. sp.

## VESPIDÆ (DIPLOPTERA).

- Eumenes fraterna*, habits; SOUTHWICK, Ins. Life, v, p. 107.  
*E. kohli*, Nossibé, BRANCSIK, p. 159, Jahresh. Ver. Trenesin. xiii, n. sp.  
*Hoplopus spinipes*, habits; VERHOEFF, p. 710, Zool. Jahrb. Syst. vi.  
*H. lævipes*, habits; *id. t. c.* p. 739.  
*Odynerus murarius*, habits; ALFKEN, p. 210, Ent. Nachr. xviii: metamorphoses; KING, Sci. Goss. 1892, pp. 196-198, woodcuts. *O. spinipes*, metamorphoses and parasites; CARPENTIER, Bull. Soc. L. Nord. France, x, p. 326.  
*O. pauli*, Cadiz, MEDINA, p. 142, Act. Soc. Esp. xxi; *O. aldrichi*, N. America, Fox, p. 197, Ent. News, iii: n. spp.

*Polistes gallicus*, color differences in sexes ; MEDINA, Act. Soc. Esp. xxi, p. 177.

*P. puncticollis*, E. Siberia, MORAWITZ, p. 150, Hor. Ent. Ross. xxvi, n. sp.

*Pterocheilus hispanicus*, Ciudad-Real, MEDINA, p. 144, Act. Soc. Esp. xxi ;

*P. bezzi*, Pavia, COBELLI, p. 67, Verh. z.-b. Wien, xlii : n. spp.

*Zethus slosonæ*, Florida, FOX, p. 29, Ent. News, iii, n. sp.

# HYMENOPTERA FOSSORIA. (SPHEGIDÆ, CRABRONIDÆ, MUTILLIDÆ, ETC.)

Systematic arrangement and classification of the *Heterogyna*, consisting of *Scoliens*, *Thynniens*, *Bradynobaeniens*, *Mutilliens*, *Fedtschenkiens*, *Sapygiens* ; SAUSSURE in Grandidier, Madagascar Hym. Ac. xx, pt. 1, pp. 176, &c.

Many of the species described by SAUSSURE last year in MT. Schw. ent. Ges. viii, are now figured and described more fully in GRANDIDIER, Madagascar, xx, pt. 1.

General observations on the dwellers in *Rubus* stems ; VERHOEFF, Zool. Jahrb. Syst. vi, pp. 746-751.

*Agencia taniata*, p. 347, pl. xxiv, fig. 8, *melæna*, p. 348, pl. xxv, fig. 11, *nitidula*, p. 349, pl. xxii, fig. 10, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. spp.

*Ammophila affinis*, account of its instinct and mode of stinging ; MARCHAL, Arch. Z. expér. (2), pp. 23-36. *A. yarrowi*, habits ; WILLISTON, Ent. News, iii, p. 85. *A. gryphus*, habits ; PERGANDE, P. E. Soc. Wash. ii, p. 256.

*A. imerinæ*, Madagascar, SAUSSURE, p. 435, Grandidier, Madagascar, xx, pt. 1, n. sp.

*Ampulex nigrocærulea*, Transvaal, SAUSSURE, p. 212, pl. iv, fig. 6, in Distant, Naturalist Transvaal, n. sp.

*Aporus compressus*, p. 309, pl. xxiv, fig. 1, *prismaticus*, p. 311, fig. 2, Madagascar, SAUSSURE in Grandidier Madagascar, xx, pt. 1, n. spp.

*Astatus* : synopsis of the N. American species ; FOX, p. 232, Canad. Ent. xxiv.

*A. pygidiulis*, N. America, FOX, Canad. Ent. p. 234 ; *A. glaber*, Rio grande do Sul, KOHL, p. 230, Ann. Hofmuseum Wien, vii ; *A. blandus*, Madagascar, SAUSSURE, p. 519, pl. xxvii, fig. 4, Grandidier, Madagascar, xx, pt. 1 : n. spp.

*Bembex fischeroides*, Somaliland, MAGRETTI, p. 958, Ann. Mus. Genov. (2) x ; *B. hova*, Madagascar, SAUSSURE, p. 457, Grandidier, Madagascar, xx, pt. 1 : n. spp.

*Bothynostethus*, *Pisonitus*, *Silaon*, are one ; PATTON, p. 90, Ent. News, iii.

*Bradynobaenus*, to form a distinct group ; SAUSSURE, p. 250, Grandidier, Madagascar, xx, pt. 1.

*Callosila*, n. subg. of *Cosila*, p. 232, with *C. flavicornis*, *minuta*, *inornata*, n. spp., S. Australia, p. 233, SAUSSURE in Grandidier, Madagascar, xx, pt. 1.

- Cerceris sibirica*, E. Siberia, MORAWITZ, p. 159, Hor. Ent. Ross. xxvi ;  
*C. carnaria*, p. 545, pl. xxvii, fig. 13, *spirans*, fig. 12, p. 553,  
 Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1 :  
 n. spp.
- Ceropales* : revision of the N. American species ; Fox, Tr. Am. Ent. Soc.  
 xix, pp. 49-63.
- C. stretchii*, p. 52, *cressoni*, p. 58, N. America, Fox, Tr. Am. Ent. Soc.  
 xix, n. spp.
- Chevrieria unicolor*, habits ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 730.
- Chlorampulex*, n. g., p. 443, near *Ampulex*, for *A. sibirica* and *compressa*,  
 Fab., with *C. striolata*, n. sp., Zanzibar, p. 446, SAUSSURE in Grandi-  
 dier, Madagascar, xx, pt. 1.
- Chlorion forficula*, Madagascar, p. 422, SAUSSURE in Grandidier, Mada-  
 gascar, xx, pt. 1, n. sp.
- Cosila jheringi*, S. Brazil, SAUSSURE in Grandidier, Madagascar, xx, pt. 1,  
 p. 234, n. sp.
- Crabronidæ*, *Pemphredonidæ*, *Trypoxylidæ*, to form three distinct families,  
 characters given ; VERHOEFF, p. 728, Zool. Jahrb. Syst. vi.
- Crabro capitosus* and spp. in Sambucus twigs, habits noticed ; VERHOEFF,  
 Zool. Jahrb. Syst. vi, pp. 717-724.
- C. (Clytochrysus) longipalpis*, Heidelberg, VERHOEFF, p. 70, Ent. Nachr.  
 xviii ; *C. femoralis*, p. 161, *biguttatus*, p. 163, E. Siberia, jaroschewskyi,  
 p. 164, *altaicus*, p. 165, Russia, *jakolewi*, E. Siberia, p. 170, *flavicollis*,  
 Transcaspian, p. 172, *ruthenicus*, p. 174, *flagellarius*, p. 175, Russia,  
*martjanowi*, E. Siberia, p. 178, MORAWITZ, Hor. Ent. Ross. xxvi ; *C.*  
*chrysites*, Sikkim ? p. 197, *C. (Cælocrabro) styrius*, Admont, p. 198,  
*amurensis*, Amurland, p. 199, *C. (Crossocerus) acanthophorus*, Switzer-  
 land, p. 201, *C. circumscriptus*, Bahia, p. 201, *C. (Lindenius) algira*,  
 Algeria, p. 202, *columbianus*, British Columbia, p. 203, KOHL, Ann.  
 Hofmuseum Wien, vii ; *C. nitidiventris*, New Jersey, p. 9, *excavatus*,  
 Florida, p. 10, Fox, Ent. News, iii : n. spp.
- Ctenagenia*, n. subg. of *Agenia*, for *Heteronyx madecassa*, *Priocnemis*  
*viduus* and *A. vespiiformis* ; SAUSSURE, p. 343, in Grandidier, Mada-  
 gascar, xx, pt. 1.
- Cyphononyx muelleri*, Africa, p. 402, SAUSSURE in Grandidier, Madagascar,  
 xx, pt. 1 ; *C. antennata*, Transvaal, SAUSSURE, p. 217, pl. v, fig. 2, in  
 Distant, Naturalist Transvaal : n. spp.
- Dasyproctus crudelis*, pl. xxvi, fig. 5, *sævus*, p. 579, *ferox*, p. 580, *immanis*,  
 Madagascar, *immitis*, S. Africa, p. 581, *indicus*, Calcutta, p. 583,  
 SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. spp.
- Diodontus hyalipennis*, Caucasus, KOHL, p. 204, Ann. Hofmuseum Wien,  
 vii ; *D. occidentalis*, *rugosus*, p. 315, *flavitaris*, *gillettei*, p. 316, *nigritus*,  
 p. 317, N. America, Fox, Tr. Am. Ent. Soc. xix : n. spp.
- Discolia præcana*, pl. iv, fig. 11, *prestabilis*, fig. 9, Transvaal, SAUSSURE,  
 p. 222, in Distant, Naturalist Transvaal, n. spp.
- Dolichurus secundus*, p. 450, pl. xxvi, fig. 1, *tertius*, p. 452, Madagascar,  
 SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. spp.

- Elis barbata*, S. Africa, p. 217, *pilosella*, Madagascar, p. 220, *hisurta*, Ceylon, p. 221, *grandidieri*, Madagascar, p. 222, SAUSSURE in Grandidier, Madagascar, xx, pt. 1; *E. reticulata*, Poona, p. 109, *E. (Trielis) orientalis*, Ceylon, p. 112, CAMERON, Mem. Soc. Manch. (4) v : n. spp.
- Fedtschenkiens* : characters and affinities; SAUSSURE, p. 301, in Grandidier, Madagascar, xx, pt. 1.
- Gorytes cribratus*, Transcaspian Region, MORAWITZ, p. 157, Hor. Ent. Ross. xxvi; *G. albosignatus*, *mirandus*, p. 152, *rufocinctus*, p. 153, Fox, Canad. Ent. xxiv : n. spp.
- Harpactes histrio*, Madagascar, SAUSSURE, p. 530, in Grandidier, Madagascar, xx, pt. 1, n. sp.
- Heliocausus*, n. g., near *Tachysphex*, p. 210, for *H. fairmairei*, n. sp., Chili, p. 211; KOHL, Ann. Hofmuseum Wien, vii.
- Hemimeria*, n. g. (*Scoliidae*), for *M. semirufa*, Guer., and *H. savignyi*, n. sp., Egypt; SAUSSURE, p. 249, in Grandidier, Madagascar, xx, pt. 1.
- Hemipogonius*, n. subg. of *Pogonius*, for *Priocnemis venustipennis*, Saus., figured, pls. ix & x, fig. 28; SAUSSURE, p. 334, in Grandidier, Hymenoptera, xx, pt. 1.
- Hemisalius*, n. subg. of *Salius*, q. v.; SAUSSURE, *infra*.
- Heteronyx madecassus*, = (*Agenia marginipennis*); SAUSSURE, p. 387, in Grandidier, Madagascar, xx, pt. 1.
- Homonotus hirundo*, Madagascar, SAUSSURE, p. 331, pl. xxiv, fig. 4, in Grandidier, Madagascar, xx, pt. 1; *H. cœrulans*, p. 213, pl. v, fig. 1, *pedestris*, p. 214, fig. 6, Transvaal, SAUSSURE in Distant, Naturalist Transvaal : n. spp.
- Isodontia leonina*, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, p. 431, pl. xix, fig. 6, n. sp.
- Larra divisa*, Pttn., is ♀ of *æthiops*, Cresson; PATTON, p. 90, Ent. News, iii.
- L. carbonaria*, p. 491, *variipes*, p. 493, pl. xxvii, fig. 1, *heydenii*, p. 494, pls. x & xii, fig. 18, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1; *L. angustifrons*, Java, *saussurei*, Madagascar, KOHL, p. 219, Ann. Hofmuseum Wien, vii : n. spp.
- Larrada similis*, p. 127, *sinensis*, p. 128, China, MOCSÁRY, Term. füzetek, xv, n. sp.
- Larraxena duæ*, Æthiopian Region, KOHL, p. 220, Ann. Hofmuseum Wien, vii, n. sp.
- Larropsis*, n. g., type *Larrada tenuicornis*, Smith; PATTON, p. 90, Ent. News, iii.
- Liacos fulvo-picta*, E. India, CAMERON, p. 98, Mem. Soc. Manch. (4) v, n. sp.
- Liris* : table of characters of the species; KOHL, pp. 227-229, Ann. Hofmuseum Wien, vii.
- L. pedestris*, Madagascar, SAUSSURE, p. 517, in Grandidier, Madagascar, xx, pt. 1; *L. gibbosa*, Arabia, p. 222, *mordax*, Borneo, p. 223, *anthracina*, p. 224, *sagax*, *morio*, p. 225, Sikkim?, KOHL, Ann. Hofmuseum Wien, vii; *L. coxalis*, Florida, PATTON, p. 90, Ent. News, iii : n. spp.

- Lyroda subita*, Say, generic position queried; PATTON, p. 90, Ent. News' iii, and FOX, p. 138, t. c.
- Mellinus arvensis*: statement as to habits corrected; VERHOEFF, p. 696, Zool. Jahrb. Syst. vi.
- Meria*: table of characters of the ♀, p. 248; SAUSSURE in Grandidier, Madagascar, xx, pt. 1.
- M. hottentota*, S. Africa, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, p. 249, n. sp.
- Mesa*, n. g. ?, for a part of *Plesia*, with the following n. spp.:—*heterogamia*, Mozambique, *atopogamia*, Zanzibar, *peringueyi*, pl. vi, fig. 17, *hottentotta*, S. Africa; SAUSSURE, pp. 244 & 245, in Grandidier, Madagascar, xx, pt. 1.
- M. diapherogamia*, Transvaal, SAUSSURE, p. 225, pl. iv, fig. 8, in Distant, Naturalist Transvaal, n. sp.
- Mesocrabro*, n. subg., for a division of the subg. *Solenius*; VERHOEFF, p. 70, Ent. Nachr. xviii.
- Methoca orientalis*, n. n. for *orientalis*, Smith (*ex parte*); MAGRETTI, Ann. Mus. Genov. (2) xii.
- M. rufa*, Mexico, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. sp.
- Microcrabro*, n. subg. of *Crabro*, p. 574, for *M. micromegas*, n. sp., Madagascar, p. 575, pl. xxvi, fig. 6; SAUSSURE in Grandidier, Madagascar, xx, pt. 1.
- Mimesa picicornis*, Irkutsk, MORAWITZ, p. 155, Hor. Ent. Ross. xxvi, n. sp.
- Miscophus handlirschii*, Algeria, KOHL, p. 214, Ann. Hofmuseum Wien, vii, n. sp.
- Mutilla representans*, ♂ described, p. 205, *dimidiata*, ♀, p. 206; MAGRETTI, Ann. Mus. Genov. (2) xii. *M. erythrocephala*, a parasite of *Crabro rubicola*; BORRIES, p. 247, Ent. Tidskr. xiii.
- M. somalica*, p. 951, *robecchii*, p. 952, *gestroi*, *cuneatiformis*, p. 953, *deckeni*, p. 954, *doriæ*, *teleki*, p. 955, *rufo-guttata*, p. 956, *conjunctoides*, p. 957, Somaliland, MAGRETTI, Ann. Mus. Genov. (2) x; *M. albistyla*, Transvaal, SAUSSURE, p. 225, pl. iv, fig. 7, in Distant, Naturalist Transvaal; *M. sikoræ*, p. 291, *divorta*, p. 296, Madagascar, SAUSSURE, in Grandidier, Madagascar, xx, pt. 1; *M. freyi*, Nossibé, BRANCSIK, p. 160, pl. vii, fig. 7, Jahresh. Ver. Trencsin, xiii; *M. kauthellæ*, p. 124, *taprobanæ*, p. 125, *trimaculata*, p. 126, *wroughtoni*, *pulchri-ventris*, p. 127, *metallica*, p. 128, *poonaensis*, p. 129, *veda*, *pulchriceps*, p. 130, *erythroceræ*, p. 131, *bhudda*, p. 132, *serratula*, *insularis*, p. 133, *kauaræ*, *constanceæ*, p. 134, *yerburghi*, p. 135, *pulcherina*, p. 136, E. India, CAMERON, Mem. Soc. Manch. (4) v; *M. ruficrus*, p. 205, *tridungulata*, p. 209, *fecæ*, p. 210, *ninnii*, p. 211, *pectinospinata*, *pulchrinella*, p. 212, *tenasserimica*, *conjungenda*, p. 214, *laminella*, p. 215, *kirbyi*, p. 216, *kohli*, p. 217, *maximincæ*, p. 218, *dissimilanda*, p. 219, *pilosella*, p. 220, *emergenda*, p. 222, *subanalís*, p. 223, *emeryi*, p. 225, *handlirschii*, *stephani*, p. 227, *josephi*, p. 228, *gribodoi*, *toratorei*, *schlettereri*, p. 229, *cariana*, p. 231, *exiloides*, p. 232,

- circumscribenda*, p. 233, *M. (Dasylabris) sejugoides*, p. 234, Burma, MAGRETTI, Ann. Mus. Genov. (2) xii ; *M. stephana*, *cincta*, *signata*, *lamellifera*, Venezuela, BUYSSON, p. 58, Ann. Soc. Ent. Fr. lxi : n. spp.
- Mygimbia muelleri*, *regina*, W. Africa, SAUSSURE, p. 412, in Grandidier, Madagascar, xx, pt. 1 ; *M. belzebuth*, p. 218, pl. v, fig. 8, *depressa*, p. 219, *distanti*, p. 220, fig. 7, *fallax*, p. 221, fig. 5, Transvaal, SAUSSURE, in Distant, Naturalist Transvaal : n. spp.
- Myzine clavata*, Transvaal, SAUSSURE, p. 242, pl. xxii, fig. 7 ; *M. nitida*, Poona, CAMERON, p. 114, pl. iv, fig. 2, Mem. Soc. Manch. (4) v : n. spp.
- Notogonia sculpturata*, Egypt, KOHL, p. 221, Ann. Hofmuseum Wien, vii ; *N. alaris*, p. 503, pl. xxvi, fig. 2, *dyscheira*, p. 510, *rufipes*, p. 511, pl. xxvi, fig. 3, *reticulata*, p. 512, Madagascar, SAUSSURE, in Grandidier, Madagascar, xx, pt. 1 : n. spp.
- Nysson curtulus*, Turkestan, MORAWITZ, p. 156, Hor. Ent. Ross. xxvi, n. sp.
- Oxybelus rufopictus*, *minutissimus*, Transcaspian Region, MORAWITZ, p. 180, Hor. Ent. Ross. xxvi ; *O. cristatus* pl. xxvii, fig. 5, p. 559, *subcristatus*, p. 561, Madagascar, *pinnatus*, p. 562, pl. xxvii, figs. 6 & 7, *angustus*, fig. 8, *peringueyi*, fig. 9, p. 563, S. Africa, SAUSSURE, in Grandidier, Madagascar, xx, pt. 1 ; *O. (Oxybeloides) odontophorus*, p. 205, *modestus*, p. 206, Araxes Valley, *obscurus*, Corfu, p. 207, *columbianus*, British Columbia, p. 208, *O. latifrons*, Araxes Valley, p. 209, KOHL, Ann. Hofmuseum Wien, vii : n. spp.
- Passalæcus relativus*, *distinctus*, p. 319, *dispar*, p. 320, N. America, Fox, Tr. Am. Ent. Soc. xix, n. spp.
- Pemphredonidæ* : revision of the N. American species ; Fox, pp. 307-326, Tr. Am. Ent. Soc. xix.
- Pemphredon angularis*, *rileyi*, p. 310, *confertim*, p. 311, *bipartior*, *tenax*, p. 313, N. America, Fox, Tr. Am. Ent. Soc. xix, n. spp.
- Philanthus triangulum*, oviposition ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 696.
- P. immitis*, Madagascar, SAUSSURE, p. 537, pl. xxiii, fig. 24, in Grandidier, Madagascar, xx, pt. 1, n. sp.
- Planiceps planatus*, California, Fox, p. 171, Ent. News, iii, n. sp.
- Plesia*, tabulation of the females ; SAUSSURE, p. 243, in Grandidier, Madagascar, xx, pt. 1.
- P. argentina*, New World, SAUSSURE, p. 243, in Grandidier, Madagascar, xx, pt. 1 ; *P. mandalensis*, Burma, MAGRETTI, p. 257, Ann. Mus. Genov. (2) xii : n. spp.
- Pogonius macilentus*, Madagascar, SAUSSURE, p. 334, pl. xxiv, fig. 5, in Grandidier, Madagascar, xx, pt. 1, n. sp.
- Polemistus*, n. g., *Pemphredoniens*, p. 565, for *P. macilentus*, Madagascar, p. 567, pl. xxvii, fig. 11, *pusillus*, Mexico, p. 567, n. spp., SAUSSURE, in Grandidier, Madagascar, xx, pt. 1.
- Pompiliens* : characters and definition, with table of genera ; SAUSSURE, pp. 303-308, in Grandidier, Madagascar, xx, pt. 1.

- Pompilus nigerrimus*, n. var. *kohli*, p. 71, *P. speciosus*, characters of, *P. (Planiceps) latreillei*, = (*Aporus lugubris*, Verh.), p. 72; VERHOEFF, Ent. Nachr. xviii.
- Priocnemis (Salius) vitripennis*, p. 65, *P. fuscopennis*, p. 66, *fallax*, *relictus*, p. 69, Germany, VERHOEFF, Ent. Nachr. xviii; *P. hirsutus*, Transvaal, SAUSSURE, p. 216, pl. v, fig. 3, in Distant, Naturalist Transvaal; *P. muelleri*, W. Africa, p. 372, *deplanatus*, p. 376, pls. viii & x, fig. 22, *sikora*, p. 386, pl. xxv, fig. 13, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1 : n. spp.
- Psen dilectus*, Madagascar, SAUSSURE, p. 571, pl. xxvi, fig. 7, in Grandidier, Madagascar, xx, pt. 1, n. sp.
- Pseudagenia blaisdelli*, California, Fox, p. 171, Ent. News, iii, n. sp.
- Rhopalum clavipes*, habits; VERHOEFF, Zool. Jahrb. Syst. vi, pp. 724 & 731.
- Salius spectabilis*, p. 151, *scarlatinus*, p. 153, Russia, MORAWITZ, Hor. Ent. Ross. xxvi; *S. (Hemisalius) albistylus*, p. 315, pl. xxv, fig. 9, *S. (Schistosalius) atristylus*, p. 318, pl. xxiv, fig. 3, Madagascar, *S. cyaniventris*, Zanzibar, p. 322, *bidens*, Madagascar, p. 328, pl. xxiii, fig. 25, SAUSSURE in Grandidier, Madagascar, xx, pt. 1 : n. spp.
- Schistonyx gryps*, pl. xxv, fig. 15, *albiculus*, fig. 14, Madagascar, SAUSSURE, p. 393, in Grandidier, Madagascar, xx, pt. 1, n. spp.
- Schistosalius*, n. subg. of *Salius*, q.v. *suprà*, SAUSSURE.
- Scolia bengalensis*, Poona, CAMERON, p. 104, Mem. Soc. Manch. (4) v; *S. bhamoensis*, p. 239, *burmanica*, p. 242, *kirbyi*, p. 244, Burma, MAGRETTI, Ann. Mus. Genov. (2) xii : n. spp.
- Solierella spinolæ*, p. 212, *chilensis*, p. 213, Chili, KOHL, Ann. Hofmuseum Wien, vii, n. spp.
- Sphærophthalma anthracina*, California, Fox, p. 172, Ent. News, iii; *S. simoni*, p. 56, *uncifera*, *fraterna*, *crocata*, p. 57, Venezuela, BUYSSON, Ann. Soc. Ent. Fr. lxi, n. spp.
- Sphecius speciosus*, habits; RILEY, Ins. Life, iv, pp. 248-252, figg. : larva and cocoon, peculiarities; RILEY, p. 170, P. E. Soc. Wash. ii.
- S. freyi*, Madagascar, HANDLIRSCH, p. 27, pl. vii, fig. 5, Jahresh. Ver. Trencsin, xiii, n. sp.
- Sphex malagassus*, SAUSSURE, p. 427, pl. xviii, fig. 38, in Grandidier, Madagascar, xx, pt. 1; *S. (Priononyx) ferrugineus*, California, Fox, p. 170, Ent. News, iii : n. spp.
- Stenagenia*, n. g. (*Pompilides*), p. 338, for *S. pedunculata*, p. 339, pl. xxiv, fig. 6, *consobrina*, p. 341, fig. 7, n. spp., Madagascar; SAUSSURE in Grandidier, Madagascar, xx, pt. 1.
- Stigmus inordinatus*, p. 322, *fulvipes*, p. 324, N. America, Fox, Tr. Am. Ent. Soc. xix; *S. temporalis*, Guatemala, KOHL, p. 204, Ann. Hofmuseum Wien, vii : n. spp.
- Stizolarra chichimeca*, Mexico, *histrion*, Zanzibar, p. 466, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. spp.

*Stizus*: monograph; HANDLIRSCH, SB. Ak. Wien, ci, pp. 25-205, pls. i-iii.

*S. magretti*, Oriental Region, p. 43, *socius*, Amboyna, p. 44, *proximus*, Oriental Region, p. 45, *pusillus*, Indo-Malay, *semperi*, Philippines, p. 46, *insularis*, Celebes, p. 47, *facialis*, Aru, *versicolor*, Oriental Region, p. 48, *javanus*, Java, p. 50, *egens*, p. 51, *antipodum*, p. 52, *signatus*, p. 53, Australia, *anthracinus*, New Guinea, p. 54, *excisus*, Brazil, p. 59, *bolivari*, Amazons, p. 60, *nanus*, Georgia, *consobrinus*, Rio Grande do Sul, p. 61, *mexicanus*, p. 66, *guttulatus*, p. 67, Mexico, *xanthochrous*, Texas, p. 69, *kotschyi*, E. Africa, p. 71, *discolor*, Algeria, p. 78, *hoplites*, Caffraria, p. 84, *mayri*, p. 85, *gazagnairei*, p. 86, Algeria, *gynandromorphus*, Syria, p. 89, *inermis*, Fiji, p. 91, *gracilicornis*, Caucasus, p. 93, *clavicornis*, Caffraria, p. 95, *calopteryx*, E. India, p. 110, *pæcilopterus*, Africa, p. 111, *chrysorrhæus*, hab.?, p. 122, *gracilipes*, Caucasus, p. 131, *melanurus*, Senegal, p. 132, *tricolor*, Syria, p. 133, *niloticus*, Egypt, p. 134, *hugelii*, E. India, p. 139, *pygidialis*, Rhodes, p. 140, *imperialis*, Caffraria, p. 141, *hyalipennis*, Sinai, p. 142, *marthæ*, Biskra, p. 143, *marnonis*, Centr. Africa, p. 145, *euchromus*, Caucasus, p. 153, *arenarum*, N. Africa, p. 154, *dewitzii*, S. Africa, p. 156, *rapax*, Egypt, p. 157, HANDLIRSCH, SB. Ak. Wien, ci, n. spp.

*Tachyrhostus claviger*, Australia, KOHL, p. 229, Ann. Hofmuseum Wien, vii, n. sp.

*Tachysphex algira*, Oran, *austriacus*, Vienna, p. 215, *T. ? integer*, Araxes Valley, p. 216, *vestitus*, Algeria, *consocius*, Caucasus, p. 217, *simonyi*, Canary Is., p. 218, KOHL, Ann. Hofmuseum Wien, vii; *T. micro-megas*, p. 481, pl. xxvii, fig. 2, *dimidiatus*, fig. 3, p. 483, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1: n. spp.

*Tachytes*: monograph of the N. American; FOX, Tr. Am. Ent. Soc. xix, pp. 234-252. *T. celebs* is ♂ *T. abdominalis*, *T. mandibularis*, habits; PATTON, p. 90, Ent. News, iii. *T. aurulenta*, = (*Liris coxalis*, Patt.); FOX, p. 138, Ent. News, iii.

*T. oviventris*, Madagascar, SAUSSURE, p. 478, in Grandidier, Madagascar, xx, pt. 1, n. sp.

*T. calcaratus*, p. 239, *prædator*, p. 240, *columbiæ*, p. 241, *spatulatus*, p. 243, *contractus*, p. 245, *minimus*, p. 248, *parvus*, p. 249, *obductus*, *mergus*, p. 250, N. America, FOX, Tr. Am. Ent. Soc. xix; *T. callosa*, Brazil, KOHL, p. 218, Ann. Hofmuseum Wien, vii: n. spp.

*Trypoxylon figulus*, habits; VERHOEFF, Zool. Jahrb. Syst. vi, pp. 709 & 725-730.

*T. scutifrons*, p. 523, pl. xxv, fig. 18, *hova*, fig. 17, p. 525, Madagascar, SAUSSURE in Grandidier, Madagascar, xx, pt. 1, n. spp.

*Tiphia fumipennis*, sexes described, MAGRETTI, p. 248, Ann. Mus. Genov. (2) xii; *T. picta*, Bulgaria, SCHULTHESS-RECHBERG, p. 384, MT. Schw. ent. Ges. viii; *T. policarinata*, p. 250, *vicina*, p. 251, *lyrata*, p. 252, *rostrata*, p. 253, *lævigata*, *cordata*, p. 254, *nodata*, *trapezata*, p. 255, Burma, MAGRETTI, Ann. Mus. Genov. (2) xii: n. spp.

## FORMICIDÆ.

- Account of the nests of ants ; FOREL, Neujahrsbl. Naturf. Ges. xcv.  
 Organs of hearing in ants ; JANET, p. cxxlvii, Bull. Soc. Ent. Fr. lxi.  
 Classification of *Myrmicidæ* ; FOREL, p. 143, in Grandidier, Madagascar, xx, pt. 2.  
 Classification of the *Attini* and *Cryptocerini* discussed, with suggestions as to their grouping ; FOREL, pp. 344 & 345, MT. Schw. ent. Ges. viii.  
 WROUGHTON gives a list of the ants of India, amounting to 212 species, and including a great deal of information as to habits and intelligence ; J. Bomb. Soc. vii, pp. 13, etc.  
 Complete systematic treatise on the ants of Madagascar ; FOREL (287).  
 Sense organs in antennæ ; SERGI (840).  
 New species of ants in amber ; EMERY (249), and *cf.* Palæontology, p. 83.  
 Speculation on the origin of the present ant fauna of Europe ; EMERY, Mem. Acc. Bologn. (5) i, pp. 156-162, and Bull. Soc. Vaud. xxvii, p. 258.  
 Symbiosis of ants and plants ; WARBURG (982).  
 Symbiosis of ants and plants in Somaliland ; KELLER (475).  
 The behaviour of various ants in connection with *Lomechusa* ; WASMANN (987).  
 The ants of Belgium, with brief characters ; LAMEERE, Ann. Ent. Belg. xxxvi, p. 61.  
 Notes on the habits and sociology of ants ; KATURIC (473, 474).  
 New names proposed for numerous known species ; DALLA TORRE, Wien. ent. Z. xi, pp. 89-92.  
*Acantholepis* : synopsis of the species and varr. ; FOREL, pp. 41-43, Ann. Ent. Belg. xxxvi.  
*A. carbonaria*, Somaliland, EMERY, p. 119, Ann. Mus. Genov. (2) xii ; *A. gracilicornis*, Aden, *simplex*, Somaliland, p. 42 (more fully described, MT. Schw. ent. Ges. viii, pp. 350-352), *opaca*, with *pulchella*, n. st., E. India, p. 43, FOREL, Ann. Ent. Belg. xxxvi : n. spp.  
*Acanthomyrmex*, n. g., for part of *Pheidole* ; EMERY, p. cclxxvi, Bull. Soc. Ent. Fr. lxi.  
*Acanthoponera brownii*, New Zealand, FOREL, p. 335, MT. Schw. ent. Ges. viii, n. sp.  
*Aeromyrma*, n. g., near *Pheidologeton*, p. 198, for *A. nosindambo*, pl. vi, fig. 1, p. 199 ; FOREL in Grandidier, Madagascar, xx, pt. 2.  
*Amblyopone gheorghieffi*, Bulgaria, FOREL, p. 309, Verh. z.-b. Wien. xlii ; *A. saundersi*, New Zealand, FOREL, p. 336, MT. Schw. ent. Ges. viii : n. spp.  
*Aneuretus*, n. g., between *Ponerides* and *Dolichoderides* (for *A. simoni*, n. sp., from Ceylon, not described) ; EMERY, p. cclxxv, Bull. Soc. Ent. Fr. lxi.  
*Anochetus grandidieri*, Madagascar, FOREL, p. 108, pl. iii, fig. 9, in Grandidier, Madagascar, xx, pt. 2, n. sp.

- Anomma arcens*, large worker from Gaboon, EMERY, p. liv, Bull. Soc. Ent. Fr. lxi.
- Aphaenogaster* (*Ischnomyrmex*) *swammerdami*, redescribed and figured, p. 167, pl. iv, fig. 14; FOREL in Grandidier, Madagascar, xx, pt. 2.
- A. barbara*, n. st. *sordida*, p. 452, *striola*, n. var., *levior*, *hispanica* worker, p. 453; FOREL, Ann. Ent. Belg. xxxvi.
- Apterostigma wasmannii*, p. 345, *molleri*, p. 348, S. Brazil, FOREL, MT. Schw. ent. Ges. viii, n. spp.
- Azteca instabilis*, hermaphrodite described; FOREL, pp. 268-270, pl. xvi, Bull. Soc. Vaud. xxviii.
- Bothroponera wasmannii*, figured, pl. iv, fig. 4, *comorensis*, p. iv, fig. 5; FOREL in Grandidier, Madagascar, xx, pt. 2.
- B. perroti*, p. 131, pl. iv, fig. 6, *cambouei*, p. 133, pl. iv, fig. 7, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2; *B. gabonensis*, W. Africa, ANDRÉ, p. 50, Rev. d'Ent. xi: n. spp.
- Camponotus* is dealt with in Part I of "Systematic Revision of the Ants of India;" FOREL, J. Bomb. Soc. vii, pp. 219-245;
- C. lateralis*, n. var. *rectus*; FOREL, p. 306, Verh. z.-b. Wien, xlii.
- C. micans*, n. st. *albisectus*; EMERY, p. 120, Ann. Mus. Genov. (2) xii.
- C. foraminosus*, *C. robecchii*, *infra*, is a form of this, *C. ruspolii*, n. st. described; FOREL, p. 350, MT. Schw. ent. Ges. viii.
- C. maculatus*, variation discussed, pp. 23-36, *radamæ*, n. st., p. 31, pl. i, fig. 4, *boirini*, p. 34, *hova*, figured, fig. 5, *C. grandidieri*, figured, fig. 6, described, p. 39, *darwinii*, p. 43, pl. ii, fig. 1, *ursus*, p. 46, pl. ii, fig. 6, *edmondi*, p. 49, pl. i, fig. 7, *robustus*, p. 54, pl. i, fig. 10, *quadrimaculatus*, p. 58, pl. ii, fig. 3, *lubbocki*, p. 60, pl. i, fig. 11, with n. st. *christoides*, p. 61, *kelleri*, pl. ii, fig. 4, *christi*, pl. i, fig. 12, p. 63, with n. sp. *foersteri*, p. 64, noticed and figured; FOREL in Grandidier, Madagascar, xx, pt. 2.
- C. mistura*, n. st. *fornaronis*, p. 23', *rufo-glaucus*, n. st. *dolendus*, p. 238, *maculatus*, n. st. *taylori*, p. 241, *infuscus*, p. 242, *junctus*, p. 243; FOREL, J. Bomb. N. H. Soc. vii.
- C. cameroni*, n. n. for *mayri*, Cam., nec. For.; FOREL, p. 256, Ann. Ent. Belg. xxxvi.
- C. buchneri*, worker noticed; ANDRÉ, p. 45, Rev. d'Ent. xi.
- C. robecchii*, Somaliland, EMERY, p. 120, Ann. Mus. Genov. (2) xii; *C. dufouri*, p. 16, pl. i, fig. 2, *elliotti*, p. 37, *echinoploides*, p. 51, pl. i, fig. 8, *sibreei*, p. 53, pl. i, fig. 9, *dromedarius*, p. 65, pl. ii, fig. 5, *nasica*, p. 67, *cambouei*, p. 68, pl. i, fig. 13, & pl. ii, fig. 6, *imitator*, p. 209, pl. iv, fig. 15, *concolor*, p. 214, pl. vi, fig. 12, *gibber*, p. 215, fig. 13, *pictipes*, p. 217, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2; *C. radiatus*, p. 233, *invidus*, p. 234, *lamarckii*, p. 236, *buddhæ*, p. 238, FOREL, J. Bomb. N. H. Soc. vii; *C. ectatomoides*, New Zealand, FOREL, p. 333, MT. Schw. ent. Ges. viii: n. spp.
- Cardiocondyla elegans*, n. var. *bulgarica*; FOREL, p. 312, Verh. z.-b. Wien, xlii.
- C. ergatoid*, male of *C. stambuloffi*; FOREL, p. 461, Ann. Ent. Belg. xxxvi.

- C. stambuloffi*, Bulgaria, FOREL, p. 310, Verh. z.-b. Wien, xlii; *C. shuckardi*, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2 : n. spp.
- Cataulacus oberthuri*, Madagascar, EMERY in Grandidier, Madagascar, xx, pt. 2, p. 146, pl. iv, fig. 9, n. sp.
- Cremastogaster scutellaris*, n. var. *christowitchii*; FOREL, p. 316, Verh. z.-b. Wien, xlii. *C. ranavalonæ*, p. 184, pl. vi, figs. 3, 4, *tricolor*, p. 187, fig. 5, *degeeri*, p. 189, fig. 6, *madagascariensis*, p. 191, pl. vi, fig. 7, redescribed and figured, *C. inermis*, n. st. *sewellii*, p. 196, pl. vi, fig. 9; FOREL in Grandidier, Madagascar, xx, pt. 2. *C. chiarinii*, variation, ♂ and ♀ described; FOREL, p. 353, MT. Schw. ent. Ges. viii.
- C. acaciæ*, p. 140, *ruspolii*, p. 142, Somaliland, FOREL, Zool. Anz. xv; *C. ferruginea*, Somaliland, FOREL, p. 353, MT. Schw. ent. Ges. viii; *C. striatulus*, W. Africa, EMERY, p. liii, Bull. Soc. Ent. Fr. lxi; *C. schenki*, p. 182, pl. vi, fig. 2, *grevei*, p. 183, fig. 3, *rasoherinæ*, p. 194, *kelleri*, p. 197, *emmae*, p. 227, pl. vi, fig. 11, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2; *C. biformis*, Borneo, ANDRÉ, p. 53, Mem. Soc. Zool. Fr. v : n. spp.
- Cryptopone*, n. g., *Ponerides*, for *Amblyopone testacea*, Motsch.; EMERY, p. cclxxv, Bull. Soc. Ent. Fr. lxi.
- Cylindromyrmex*, Mayr, =( *Holcponera*, Cam.) ; FOREL, p. 256, Ann. Ent. Belg. xxxvi.
- C. longiceps*, Brazil, ANDRÉ, p. 47, Rev. d'Ent. xi, n. sp.
- Cyphomyrmex foxi*, Jamaica, ANDRÉ, p. 56, Rev. d'Ent. xi, n. sp.
- Dimorphomyrmex*, n. g., near *Gesomyrmex*, p. 49, for *D. janeti*, n. sp., Borneo, p. 51; ANDRÉ, Mem. Soc. Zool. v.
- Dorylus nigricans*, *egyptiacus*, noticed; EMERY, p. liv, Bull. Soc. Ent. Fr. lxi.
- Drepanognathus rugosus*, worker described; MAYR, Term. füzetek, xv, p. 127.
- Echinopla rugosa*, Borneo, ANDRÉ, p. 47, Mem. Soc. Zool. v, n. sp.
- Emeryia*: this is the ergatoid male of *Cardiocondyla wroughtonii*; FOREL, p. 461, Ann. Ent. Belg. xxxvi.
- Epocus*, n. g., near *Anergates*; EMERY, p. cclxxvi, Bull. Soc. Ent. Fr. lxi.
- Euponera*, n. subg. of *Ponera*; FOREL, p. 126, in Grandidier, Madagascar, xx, pt. 2.
- Eusphinctus*, n. g., near *Sphinctomyrmex*, for *E. furcatus*, n. sp. (not described); EMERY, p. cclxxv, Bull. Soc. Ent. Fr. lxi.
- Forelius*, n. g., for *Iridomyrmex mccoockii*; EMERY, Z. wiss. Zool. xlv, p. 389 (omitted in Zool. Rec. xxv).
- Formica nasuta*, habits; FOREL, p. 307, Verh. z.-b. Wien, xlii.
- Gesomyrmex chaperi*, Borneo, ANDRÉ, p. 47, Mem. Soc. Zool. v, n. sp.
- Lasius*: embryology of normal and parthenogenetic eggs; HENKING, Z. wiss. Zool. liv, pp. 137-140.
- Leptogenys falcigera*, described and figured, p. 109, pl. iii, fig. 10; FOREL in Grandidier, Madagascar, xx, pt. 2.

- L. pavesii*, Somaliland, EMERY, p. 111, Ann. Mus. Genov. (2) xii; *L. incisa*, Madagascar, p. 113, pl. iv, fig. 1, FOREL in Grandidier, Madagascar, xx, pt. 2 : n. spp.
- Leptothorax bulgaricus*, Bulgaria, FOREL, p. 314, Verh. z.-b. Wien, xlii; *L. grisei*, Canary Is., FOREL, p. 456, Ann. Ent. Belg. xxxvi : n. spp.
- Liometopum microcephalum*, habits; FOREL, p. 308, Verh. z.-b. Wien, xlii: structure of nest; MAYR, t. c. p. 317.
- Lobopelta sulcinoda*, Gaboon, ANDRÉ, p. 48, Rev. d'Ent. xi; *L. oswaldi*, p. 119, pl. iv, fig. 2, *saussurei*, pp. 121 & 218, *jonesii*, p. 219, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2 : n. spp.
- Mayria madagascariensis*, figured and noticed, p. 75, pl. ii, fig. 7; FOREL in Grandidier, Madagascar, xx, pt. 2.
- Meranoplus nanus*, Gaboon, ANDRÉ, p. 55, Rev. d'Ent. xi; *M. radamæ*, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2, p. 148, pl. iv, fig. 10 : n. spp.
- Monomorium gracillimum*, n. st. *robustior*; FOREL, p. 352, MT. Schw. ent. Ges. viii.
- M. medinæ*, Canaries, FOREL, p. 454, Ann. Ent. Belg. xxxvi; *M. suteri*, p. 340, *smithii*, p. 342, New Zealand, FOREL, MT. Schw. ent. Ges. viii : n. spp.
- Myrmicaria subcarinata*, habits; ROTHNEY, P. E. Soc. 1892, p. v.
- Mystrium*: characters of, pp. 114-116; *M. mysticum*, figured, pl. iii, fig. 11, ♀ described, p. 117; FOREL in Grandidier, Madagascar, xx, pt. 2.
- Ocymyrmex robecchii*, Somaliland, p. 114, *weitzeckeri*, Basutoland, p. 116, EMERY, Ann. Mus. Genov. (2) xii, n. spp.
- Odontomachidæ*: notes on the springing powers of; WASMANN, Wien. ent. Z. xi, pp. 316 & 317.
- Oligomyrmex grandidieri*, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2, p. 201, n. sp.
- Otomyrmex*, n. subg. of *Cataulacus*; FOREL in Grandidier, Madagascar, xx, pt. 2, p. 147.
- Parasyscia imerinensis*, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2, p. 138, pl. iii, fig. 12, n. sp.
- Pheidole cameroni*, Mayr., (= *monticola*, Cam.) ; CAMERON, Ent. M. M. xxviii, p. 67.
- Pheidole longispinosa*, p. 170, pl. v, fig. 1, *oswaldi*, pp. 173 & 227, fig. 2, *sikoræ*, p. 223, *veteratrix*, p. 225, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2; *P. ? variolosa*, Somaliland, EMERY, p. 113, Ann. Mus. Genov. (2) xii; *P. risii*, Buenos Ayres, FOREL, p. 38, Ann. Ent. Belg. xxxvi : n. spp.
- Plagiolepis custodiens*, n. varr. *pilipes*, *hirsuta*, *detrita*; EMERY, p. 118, Ann. Mus. Genov. (2) xii.
- Polyrhacis concava*, ♀ described; ANDRÉ, p. 45, Rev. d'Ent. xi.
- P. paradoxæ*, Gaboon, ANDRÉ, p. 46, Rev. d'Ent. xi; *P. jerdonii*, Ceylon, FOREL, p. 17, Neujahrsbl. Naturf. Ges. xcv : n. spp.

- P. sakalava*, pp. 124 & 222, pl. iv, fig. 3, *P. (Euponera) sikoræ*, p. 127, *johannæ*, p. 220, pl. v, fig. 11, *elisæ*, p. 221, pl. v, fig. 10, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2; *P. annamita*, Hué, ANDRÉ, p. 49, Rev. d'Ent. xi : n. spp.
- Prenolepis* : characters of species from Madagascar and elsewhere, pp. 80 & 93, pl. ii, detail of ♂ characters, &c., *P. bourbonica*, For., is a good species, p. 82, *P. braueri*, n. st. *humbloti*, p. 90, pl. ii, fig. 11; FOREL in Grandidier, Madagascar, xx, pt. 2. *P. imparis*, Say, habits and synonymy; PATTEN, Am. Nat. xxvi, p. 871.
- P. ellisii*, p. 87, pl. ii, fig. 10, *glabra*, p. 92, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2 : n. spp.
- Prolasius*, n. subg. of *Lasius*, for *Formica advena*, Sm.; FOREL, p. 331, MT. Schw. ent. Ges. viii.
- Sima sahlbergii*, redescribed and figured, p. 204, pl. v, fig. 4, n. st. *morondaviensis*, p. 206; FOREL in Grandidier, Madagascar, xx, pt. 2.
- S. spininoda*, Gaboon, ANDRÉ, p. 51, Rev. d'Ent. xi; *S. grandidieri*, pp. 203 & 229, pl. v, fig. 3, *rakotonis*, p. 206, pl. v, fig. 5, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2 : n. spp.
- Simopone*, n. g., near *Cylindromyrmex*, p. 139, for *S. grandidieri*, n. sp., Madagascar, p. 141, pl. iv, fig. 8, FOREL in Grandidier, Madagascar, xx, pt. 2.
- Stenomyrmex africanus*, female described; ANDRÉ, p. 47, Rev. d'Ent. xi.
- Strumigenys antarctica*, New Zealand, FOREL, p. 338, MT. Schw. ent. Ges. viii, n. sp.
- Tapinoma flavidum*, Borneo, ANDRÉ, p. 51, Mém. Soc. Zool. v, n. sp.
- Technomyrmex mayri*, Madagascar, FOREL, p. 99, pl. iii, fig. 6, in Grandidier, Madagascar, xx, pt. 2, n. sp.
- Tetramorium cespitum*, n. st. *depressum*; FOREL, p. 455, Ann. Ent. Belg. xxxvi : and n. st. *exasperatum*; EMERY, Expl. Sci. Tunis. Hym. p. 31. *T. striatum*, habits, formation of nests, &c.; SMITH, Ent. M. M. xxviii, p. 60. *T. blochmannii*, figured, pl. v, fig. 6, n. var., *montanum*, described, p. 153; FOREL in Grandidier, Madagascar, xx, pt. 2.
- T. (Xiphomyrmex) kelleri*, redescribed and figured, p. 153, pl. iv, fig. 11; FOREL in Grandidier, Madagascar, xx, pt. 2.
- T. (X.) humbloti*, p. 154, pl. iv, fig. 12, *bessonii*, p. 156, fig. 13, *schaufussi*, p. 158, Madagascar, FOREL in Grandidier, Madagascar, xx, pt. 2, n. spp.
- Tomognathus sublaevis*, note on; MEINERT, Ent. Med. iii, p. 205.
- Triglyphothrix* : ♂ described; ANDRÉ, p. 53, Rev. d'Ent. xi.
- T. gabonensis*, W. Africa, ANDRÉ, p. 53, Rev. d'Ent. xi, n. sp.

## TEREBRANTIA.

[*Cf.* ASHMEAD (17, 18, 19, 20, 21, 22), BERTHOUMIEU (74), BIGNELL (82), BRISCHKE (126, 127), BRODIE (129), BUYSSON (11, 148), BUYSSON & MARSHALL (149), CARPENTIER (160), CUNNINGHAM (195), FOX (298), FROGGATT (311), FYLES (314), GILLETTE (344), HARRINGTON (388), HOWARD (432, 433, 434, 435, 436), KOHL (501), KRIECHBAUMER (523, 524, 525, 526), KULAGIN (528), LESNE (548), MARSHALL (583), MOCSÁRY (615), NERÉN (631), RILEY (747), SAUSSURE (210), SEMENOW (827, 828, 829), STADELMANN (883), THOMSON (927), TOWNSEND (949), TRAIL (950), VERHOEFF (964).]

*Hymenopterous* parasites of spiders ; HOWARD (435).

Spider parasites, list of ; HASSELT, Tijdschr. Ent. xxxv, pp. xxxviii-xli.

## CHRYSIDIDÆ.

Catalogue of the family ; DALLA TORRE (198).

*Chrysididæ* of Valais described, with figures of terminal segments ; FREY-GESSNER, Bull. Soc. Murith. xvi, pp. 44-112, pl. iii.

*Achrysis*, n. subg. of *Pseudochrysis* ; SEMENOW, p. 486, Hor. Ent. Ross. xxvi.

*Chrysis scutellaris*, synonymy ; BECKERS, p. 318, Wien. ent. Z. xi.

*C.* (*Gonochrysis*) *tekensis*, p. 75, *C.* (*Dichrysis*) *bispina*, p. 77, *C.* (*Tetrachrysis*) *gracilicornis*, p. 78, Transcaspian Region, *schalfewi*, Chinese Turkestan, p. 80, *chrysophora*, Transcaspian Region, p. 81, *buchneri*, E. Siberia, p. 83, *strauchi*, p. 85, *pleskei*, p. 87, Chinese Turkestan, *leptopæila*, Montenegro, p. 88, *bianchii*, Transcaspian Region, p. 90, *grumorum*, Amdo, p. 92, *C.* (*Hexachrysis*) *herzensteini*, Persia, p. 94, SEMENOW, Bull. Pétersb. (n.s.) iii, n. spp.

*Cleptes flammifer*, S. Europe, p. 498, *obsoletus*, Sarepta, p. 500, *buyssonis*, Montenegro, p. 501, *mocsarii*, Hungary, p. 502, SEMENOW, Bull. Pétersb. (n.s.) ii, n. spp.

*Ellampus scutellaris*, Panz., = (*panzeri*, Fab.) ; DALLA TORRE, p. 205, Wien. ent. Z. xi. *E. tournieri*, n. n. for (*Notozus viridis*, Tourn.) ; DALLA TORRE, p. 93, t. c. *E. auratus*, habits ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 740.

*E. testaceicornis*, E. Russia, BUYSSON in André, Spec. Hym. vi ; *E. heros*, China, SEMENOW, p. 71, Bull. Pétersb. (n.s.) iii : n. spp.

*Hedychridium jakolewi*, Transcaspian Region, SEMENOW, Bull. Pétersb. (n.s.) iii, n. sp.

*Hedychrum collare*, Sarepta, SEMENOW, p. 73, Bull. Pétersb. (n.s.) iii, n. sp.

*Notozus konowi*, p. 102, *particeps*, p. 105, Mecklenburg, *putoni*, France, p. 108, BUYSSON in André, Spec. Hym. vi, n. spp.

*Pseudochrysis* and allies, characters discussed and tabulated ; SEMENOW, pp. 480-491, Hor. Ent. Ross. xxvi.

*Spintharina*, n. subg. of *Pseudochrysis* ; SEMENOW, p. 485, Hor. Ent. Ross. xxvi.

## ICHNEUMONIDÆ.

- On the relations of primary and secondary parasites ; CARPENTIER (160).  
 On the existence of poison-glands in *Ichneumonides* ; BUYSSON, Rev. d'Ent. xi, pp. 257 & 258, pl. i.
- Agrypon stenostigma*, Scandinavia, THOMSON, Opusc. ent. xvi, p. 1771, n. sp.
- Amblyteles speciosus* and *I. apricus*, note on ; KRIECHBAUMER, p. 200, Ent. Nachr. xviii.
- A. flavolatus*, Caucasus, p. 41, *inermis*, Switzerland, *bicuspis*, Savoy, *frustrator*, Basses Alpes, p. 42, *angustus*, *radoszkowskii*, *capitatus*, Askhabad, *adventor*, Tunis, p. 43, BERTHOUMIEU, Rev. d'Ent. xi, n. spp.
- Anomalon* : THOMSON discusses the allied forms, Opusc. ent. xvi, pp. 1757-1772.
- A. lapponicum*, p. 1763, *orbitale*, *annulitarse*, *clavipennis*, p. 1764, Scandinavia, *A. (Barylypa) laticeps*, p. 1766, *genalis*, p. 1767, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.
- Astiphromma pectoralis*, Texas, ASHMEAD, p. 107, Ent. News, iii, n. sp.
- Bassus clypearis*, Prussia, BRISCHKE, p. 43, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Blaptocampus*, n. subg., for *Anomalon nigricorne*, and *perspicuum* ; THOMSON, Opusc. ent. xvi, p. 1765.
- Cænocryptus bimaculatus*, oviposition and larvæ ; VERHOEFF, Zool. Jahrb. Syst. vi, pp. 692-696.
- Campoplex lateralis*, Prussia, BRISCHKE, p. 44, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Catadelphus pestrei*, France, BERTHOUMIEU, Rev. d'Ent. xi, pp. 45-56, n. sp.
- Distantella*, n. g., *Cryptinæ*, p. 229, for *D. trinotata*, n. sp., Transvaal, p. 230 ; SAUSSURE in Distant, Naturalist Transvaal.
- Ephialtes divinator*, *mediator*, habits ; VERHOEFF, pp. 741-744, Zool. Jahrb. Syst. vi.
- Erromenus defectivus*, Prussia, BRISCHKE, p. 41, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Gnathoxys tristis*, Prussia, BRISCHKE, p. 31, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Hemipimpla*, n. g., for *H. caffra*, p. 227, *calliptera*, p. 228, n. spp., Transvaal ; SAUSSURE in Distant, Naturalist Transvaal.
- Hemiteles subimpressus*, p. 48, *coxalis*, *rufus*, p. 49, Prussia, BRISCHKE, Schr. Ges. Danz. (n.s.) viii ; *H. prosthesimæ*, p. 294, *micarivora*, p. 295, *drassi*, p. 296, N. America, HOWARD, P. E. Soc. Wash. ii ; *H. erasmus*, p. 63, *pothinus*, p. 64, Venezuela, MARSHALL, Ann. Soc. Ent. Fr. lxi : n. spp.
- Hepiopelmus leucostigma*, n. var., *4-guttata* ; KRIECHBAUMER, p. 202, Ent. Nachr. xviii.

- H. apicalis*, Prussia, BRISCHKE, p. 30, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Ichneumon molitorius* and *deliratorius*, synonymy discussed; KRIECHBAUMER, p. 39, Ent. Nachr. xviii. *I. rubens*, ♂ described, p. 196, ♀ var., p. 198, *alpicola*, var. ♂, p. 198; KRIECHBAUMER, t. c. *I. gers-taeckeri*, *erythromerus*, *croceipes*, *dissimilis*, *præstigiator*, *deletus*, notes on; KRIECHBAUMER, pp. 292-295, t. c. *I. firmipes*, Wesm., note on; NERÉN, Ent. Tidskr. xiii, p. 67.
- I. singularis*, Transcaspian, *scopulator*, Oural Mts., *evanidus*, p. 37, *paganus*, *erraticus*, France, *cintratus*, Estremadura, p. 38, *delphinus*, *buyssoni*, *bifossatus*, p. 39, *trifarius*, France, *levicosa*, Transcaspian, *canescens*, p. 40, *bifarius*, p. 41, France, BERTHOUMIEU, Rev. d'Ent. xi; *I. szechenyii*, China, FRIVALDSZKY, p. 126, Term. füzetek, xv; *I. discoensis*, W. Greenland, FOX, P. Ac. Philad. 1892, p. 134 : n. spp.
- Ischnocryptus*, n. subg. of *Phygadenon*, q.v.; KRIECHBAUMER, p. 351, Ent. Nachr. xviii.
- Ischyrocnemis ottawaensis*, Canada, HARRINGTON, p. 98, Canad. Ent. xxiv, n. sp.
- Leptocryptus albomarginatus*, p. 371, *bellulus*, p. 372, *rubens*, p. 373, Germany, KRIECHBAUMER, Ent. Nachr. xviii, n. spp.
- Limneria consumtor*, ♂ described; BRISCHKE, p. 21, Schr. Ges. Danz. (n.s.) viii.
- Lochetica* (Frst.), n. g., for *Phygadenon pimplarius*; KRIECHBAUMER, p. 340, Ent. Nachr. xviii.
- Mesochorus splendidulus*, larval peculiarities and development; KULAGIN (528).
- Mesoleius* (? *Spudæa*) *similis*, Prussia, BRISCHKE, p. 20, Schr. Ges. Danz. (n.s.) viii; *M. bipunctatus*, *albopictus*, p. 34, *affinis*, *similis*, p. 35, *longicornis*, p. 36, Prussia, BRISCHKE, Schr. Ges. Danz. (n.s.) viii : n. spp.
- Mesoleptus nigricornis*, Prov., referred to *Ctenopelma*; HARRINGTON, p. 99, Canad. Ent. xxiv.
- M. (Hypocryptus) testaceicornis*, Prussia, BRISCHKE, p. 33, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Mesostenus simonis*, Venezuela, MARSHALL, p. 61, Ann. Soc. Ent. Fr. lxi, n. sp.
- Microcryptus amænus*, Worms, KRIECHBAUMER, p. 362, Ent. Nachr. xviii, n. sp.
- Nemeritis raphidiæ*, Munich, KRIECHBAUMER, p. 234, Ent. Nachr. xviii, n. sp.
- Notopygus americana*, Canada, HARRINGTON, p. 98, Canad. Ent. xxiv, n. sp.
- Oneista bohemani*, redescribed; KRIECHBAUMER, p. 41, Ent. Nachr. xviii.
- Ophion wustneii*, Sonderburg, p. 232, *slaviceki*, Moravia, p. 233, KRIECHBAUMER, Ent. Nachr. xviii, n. spp.

- Orthocentrus palpalis*, Prussia, BRISCHKE, Schr. Ges. Danz. (n.s.) viii, p. 43, n. sp.
- Perilissus* (*Rhæstes*) *testaceipes*, Prussia, BRISCHKE, p. 19, Schr. Ges. Danz. (n.s.) viii ; *P. nigropunctatus*, Prussia, BRISCHKE, p. 37, Schr. Ges. Danz. (n.s.) viii : n. spp.
- Perosis albopicta*, p. 214, *gracilis*, p. 216, Germany, KRIECHBAUMER, Ent. Nachr. xviii, n. spp.
- Pezomachus micarice*, Massachusetts, HOWARD, p. 294, P. E. Soc. Wash. ii, n. sp.
- Phæstus* ? *sericeus*, Prussia, BRISCHKE, p. 39, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Phygadeuon cretatus*, p. 363, *diaphanus*, p. 364, notes on ; KRIECHBAUMER, Ent. Nachr. xviii.
- P.* (*Ischnocryptus*) *geniculatus*, p. 343, *forticornis*, *clotho*, p. 344, *luchesis*, p. 345, *atropos*, p. 346, Bavaria, KRIECHBAUMER, Ent. Nachr. xviii ; *P. caracacensis*, Venezuela, MARSHALL, Ann. Soc. Ent. Fr. lxi, p. 62 : n. spp.
- Pimpla instigator*, bred from *Trichiosoma* ; BRISCHKE, p. 57, Schr. Ges. Danz. (n.s.) viii.
- P. ellopiae*, Brit. Columbia, HARRINGTON, p. 99, Canad. Ent. xxiv ; *P. argiopes*, p. 65, *simonis*, p. 67, Caracas, MARSHALL, Ann. Soc. Ent. Fr. lxi : n. spp.
- Platylabus uranius*, ♂ described ; THOMSON, p. 1773, Opusc. ent. xvi.
- Plesiophthalmus paniscoides*, Massachusetts, ASHMEAD, p. 107, Ent. News, iii, n. sp.
- Polyblastus* (*Scopiorus*) *lucidus*, p. 40, *albiventris*, p. 41, Prussia, BRISCHKE, Schr. Ges. Danz. (n.s.) viii, n. spp.
- Polyblastus* (*Zatytopa*) *strigis*, p. 291, *P. theridii*, p. 292, *P. (Zaglyptus) koebeleri*, p. 293, N. America, HOWARD, P. E. Soc. Wash. ii ; *P. dichroa*, Venezuela, MARSHALL, p. 67, Ann. Soc. Ent. Fr. lxi : n. spp.
- Prionopoda canadensis*, Ottawa, HARRINGTON, p. 98, Canad. Ent. xxiv, n. sp.
- Pseudacænites*, n. g., *Pimplidarum*, for *P. moravicus*, n. sp., Mähren ; KRIECHBAUMER, p. 219, Ent. Nachr. xviii.
- Psilomastax cyaneus*, Sardinia (from pupa of *Papilio hospiton*), KRIECHBAUMER, p. 101, Ent. Nachr. xviii ; *P. violaceus*, = (*cyaneus*, Kriechb.), MOCSÁRY, Ent. Nachr. xviii, p. 208 : n. spp.
- Rhimphalia* ? *pilosa*, Prussia, BRISCHKE, p. 39, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Tryphon mesoxanthus* and *punctus*, note on ; KRIECHBAUMER, p. 203, Ent. Nachr. xviii. *T. punctus*, habits, synonymy, characters ; STEIN, pp. 102-105, Ent. Nachr. xviii.
- T. grossus*, Prussia, BRISCHKE, p. 38, Schr. Ges. Danz. (n.s.) viii, n. sp.
- Udenia*, Förster, characters given ; KRIECHBAUMER, p. 40, Ent. Nachr. xviii.

## BRACONIDÆ.

List of Virginian hosts of *Braconide* ; HOPKINS, Ins. Life, iv, pp. 256-259.

*Aleiodes unguularis*, p. 1677, *punctipes*, p. 1678, *arcticus*, *borealis*, p. 1679, *crassipes*, p. 1681, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Apanteles* : habits and distinction by secondary parasites ; CARPENTIER, Bull. Soc. L. Nord France, x, pp. 35-40 : synonymy of the American species ; PATTON, Psyche, vi, p. 260.

*Arrhaphis americana*, *minuta*, Florida, ASHMEAD, Psyche, vi, p. 289, n. spp.

*Aspicolpus borealis*, Scandinavia, THOMSON, p. 1726, Opusc. ent. xvi, n. sp.

*Ascogaster fuscipennis*, *leptopus*, p. 1718, *clypealis*, *nigricornis*, p. 1719, *cynipum*, *sternalis*, *cavifrons*, *gibbiscuta*, p. 1720, *graniger*, p. 1721, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Blacus spinifer*, Scandinavia, THOMSON, p. 1735, Opusc. ent. xvi, n. sp.

*Bracon furtivus*, Canada, FYLES, p. 34, Canad. Ent. xxiv ; *B. hæmobaphes*, Venezuela, MARSHALL, p. 68, Ann. Soc. Ent. Fr. lxi : n. spp.

*Calyptus mucronatus*, p. 1703, *strigator*, *truncatus*, p. 1704, *lapponicus*, *macrurus*, p. 1705, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Chelonus seticornis*, Scandinavia, THOMSON, p. 1714, Opusc. ent. xvi, n. sp.

*Clinocentrus tenuicornis*, p. 1687, *petiolaris*, *striolatus*, p. 1688, *gracilipes*, *breviculcar*, p. 1689, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Colastes caudatus*, N. Europe, THOMSON, p. 1691, Opusc. ent. xvi, n. sp.

*Euphorus grandiceps*, *brevispina*, *facialis*, p. 1747, *microcerus*, p. 1748, *rubricollis*, *obscuripes*, p. 1749, *fulviceps*, *arenicola*, p. 1751, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Exothecus foveolator*, p. 1698, *lævis*, *flavitaris*, *lapponicus*, *pubicornis*, p. 1699, *laticarpus*, *flaviventris*, p. 1700, Scandinavia, THOMSON, Opusc. ent. xvi, n. spp.

*Helcon femoralis*, Scandinavia, THOMSON, p. 1725, Opusc. ent. xvi, n. sp.

*Microgaster glomeratus*, particulars as to development of embryo and larva ; KULAGIN (528). *M.* sp. parasitic on imago of *Eleodes* ; RILEY (747).

*Pambolus bifasciatus*, California, ASHMEAD, Psyche, vi, p. 290, n. sp.

*Perilitus omophli*, Algeria, with metamorphoses, LESNE, Ann. Soc. Ent. Fr. lxi, pp. 305 & 308, pl. v ; *P. gracilipes*, p. 1742, *caudatus*, *flaviventris*, *areolatus*, p. 1743, *brevipetiolatus*, p. 1744, *facialis*, *borealis*, p. 1745, Scandinavia, THOMSON, Opusc. ent. xvi : n. spp.

*Phanomeris glabricollis*, Scandinavia, THOMSON, p. 1696, Opusc. ent. xvi, n. sp.

*Rhogas medianus*, p. 1668, *rufipes*, p. 1669, *alpinus*, p. 1671, *flavipalpis*, *hirtus*, p. 1672, Scandinavia, THOMSON, Opusc. ent. xvi ; *R. xanthus*, Caracas, MARSHALL, p. 69, Ann. Soc. Ent. Fr. lxi : n. spp.

*Rhysipolis obscuripes*, *varicoxa*, Scandinavia, THOMSON, p. 1692, Opusc. ent. xvi, n. spp.

*Sigalphus antennalis*, p. 1706, *parrvus*, p. 1707, *breviventris*, *rimulosus*, p. 1708, *ambiguus*, *opacus*, *nigripes*, p. 1709, *crassiceps*, p. 1710, Scandinavia, THOMSON, Opusc. ent. xvi : n. spp.

## EVANIIDÆ, STEPHANIIDÆ, MONOMACHIDÆ, TRIGONALIDÆ.

- Aulacus sibiricola*, Centr. Siberia, p. 27, *morawitzi*, Transcaspian Region, p. 29, SEMENOW, Bull. Pétersb. (n.s.) iii, n. spp.
- Evania schlettereri*, Araxes Valley, KOHL, p. 231, Ann. Hofmuseum Wien, vii ; *E. cribrata*, hab. ?, SEMENOW, p. 10, Bull. Pétersb. (n.s.) iii : n. spp.
- Gasteryption intermedium*, p. 13, *fallaciosum*, p. 14, *dubiosum, obsoletum, insidiosum*, p. 15, *foveiceps*, p. 17, *schewyrewi*, p. 19, Russia, *coniceps*, Turkestan, p. 20, *dimidiatum*, E. Siberia, p. 22, *dilutum*, Chinese Turkestan, p. 23, *sibiricum*, Central Siberia, p. 24, *forticorne*, Andalusia, p. 26, SEMENOW, Bull. Pétersb. (n.s.) iii : n. spp.
- Monomachus viridis*, Brazil, STADELMANN, p. 237, Berl. Ent. Zeit. xxxvii, pl. vi, fig. 5, n. sp.
- Stephanus martini*, Sumatra, STADELMANN, Berl. Ent. Zeit. xxxvii, p. 236, pl. vi, fig. 4, n. sp.
- Trigonalis simoni*, Caracas, BUYSSON, p. 59, Ann. Soc. Ent. Fr. lxi, n.sp.

## CHALCIDIDÆ.

- The biology of *Chalcididæ*, HOWARD, pp. 567-588, P. U. S. Nat. Mus. xiv.
- Mode of destruction of *Coccidæ* by parasites ; HOWARD, p. 351, P. E. Soc. Wash. ii.
- Odoriferous Chalcididæ*, HOWARD, P. E. Soc. Wash. ii, p. 215.
- Blastophaga* : fertilisation of *Ficus roxburghii* by ; CUNNINGHAM (195).
- B. psenes* : its value as caprifying agent ; RILEY, P. Biol. Soc. Washington, vii, p. 99.
- Calocerinus*, n. g., for *Tetracnemus floridanus*, Ashm.; HOWARD, p. 368, P. U. S. Nat. Mus. xv.
- Chalcura californica*, California, ASHMEAD, p. 356, P. E. Soc. Wash. ii, n. sp.
- Cratæpus fletcherii*, Canada, ASHMEAD, p. 309, Canad. Ent. xxiv, n. sp.
- Elasmus* : habits, *E. varius*, figured ; HOWARD, *Ins. Life*, iv, p. 253.
- Eunotus lividus*, N. America, ASHMEAD, P. E. Soc. Wash. ii, p. 288, n. sp.
- Eupelmus piceus*, p. 296, *drassi*, p. 297, N. America, HOWARD, P. E. Soc. Wash. ii, n. spp.
- Eurytoma rubicola*, habits ; VERHOEFF, Zool. Jahrb. Syst. vi, p. 737.
- Holcopelte nitens*, Washington, HOWARD, p. 298, P. E. Soc. Wash. ii, n. sp.
- Kapala terminalis*, Cuba, ASHMEAD, p. 358, P. E. Soc. Wash. ii, n. sp.
- Laelaps callisto*, Venezuela, MARSHALL, p. 73, pl. iv, fig. 3, Ann. Soc. Ent. Fr. lxi, n. sp.
- Larradomorpha*, n. g., near *Polistomorpha*, p. 238, for *L. insignis*, n. sp., W. Africa, p. 239, pl. vi, fig. 7, STADELMANN, Berl. Ent. Zeit. xxxvii.
- Lophyrocera apicalis*, California, ASHMEAD, p. 357, P. E. Soc. Wash. ii, n. sp.

*Melittobia*: the hosts and habits of the species discussed; HOWARD, P. E. Soc. Wash. ii, pp. 244-248.

*M. chalybii*, N. America, ASHMEAD, p. 231, P. E. Soc. Wash. ii, n. sp.

*Mestocharis wilderi*, N. America, HOWARD, p. 298, P. E. Soc. Wash. ii, n. sp.

*Metagea schwarzii*, N. America, ASHMEAD, p. 356, P. E. Soc. Wash. ii, n. sp.

*Orasema occidentalis*, California, ASHMEAD, p. 355, P. E. Soc. Wash. ii, n. sp.

*Pentacnemus*, n. g., *Encyrtinae*, for *P. bucculatricis*, n. sp., Missouri; HOWARD, p. 366, pl. xlvii, fig. 1, P. U. S. Nat. Mus. xv.

*Podagrion*, notes on, with fig.; *Ins. Life*, iv, p. 243.

*Prionopelma basilica*, Venezuela, MARSHALL, p. 71, pl. iv, fig. 2, Ann. Soc. Ent. Fr. lxi, n. sp.

Development of *Smicra clavipes* in *Stratiomys*; HENNEGUY, C.R. cxiv, p. 133.

*Tetracladia*, n. g., *Encyrtinae*, for *T. texana*, Texas, p. 367, pl. xlvi, fig. 1, *gracilis*, Florida, p. 368, n. spp., N. America; HOWARD, P. U. S. Nat. Mus. xv.

*Tetrastichus banksii*, Washington, HOWARD, p. 299, P. E. Soc. Wash. ii, n. sp.

#### PROCTOTRUPIDÆ.

*Pristocera rosmarus*, Cameroons, STADELMANN, p. 237, pl. vi, fig. 6, Berl. Ent. Zeit. xxxvii, n. sp.

*Prosacantha bæiformis*, Caracas, MARSHALL, p. 75, pl. iv, fig. 5, Ann. Soc. Ent. Fr. lxi, n. sp.

*Scelio venezuelensis*, Caracas, MARSHALL, p. 74, pl. iv, fig. 4, Ann. Soc. Ent. Fr. lxi, n. sp.

*Tanyzonus*, n. g. (*Belytidae*), for *T. bolitophilæ*, n. sp., New Zealand; MARSHALL, p. 276, Ent. M. M. xxviii: note on habits by HUDSON, p. 277. P. 308, *t. c.*, this is said to be the same as *Betyla fulva*, Cameron.

#### CYNIPIDÆ.

Embryology in parthenogenetic eggs; HENKING (396).

Notes on synonymy, proposing new names; DALLA TORRE, pp. 131 & 132, Wien. ent. Z. xi.

*Andricus hartigii*, Fœrst.: this name is valid; CAMERON, Ent. M. M. xxviii, p. 67.

*A. cellularius*, *frequens*, Colorado, GILLETTE, p. 247, Ent. News, iii, n. spp.

*Aulax nabali*, Toronto, BRODIE, p. 13, Canad. Ent. xxiv, n. sp.

*Cynips acaciædiscoloris*, p. 153, *acaciælongifoliæ*, p. 154, *maideni*, p. 155, Sydney, FROGGATT, P. Linn. Soc. N.S.W. (2) vii, n. spp.

- Pediaspis acerinae*, Bremi., =(sorbi, Tischb., and aceris, Foerst.); CAMERON, Ent. M. M. xxviii, p. 67.  
*Rhodites rosæ*, embryology of parthenogenetic eggs; HENKING, Z. wiss. Zool. liv, pp. 142, &c., and oviposition, pp. 145 & 146.  
*Spathegaster punctatus*, England, BIGNELL, Ent. M. M. xxviii, p. 176, n. sp.

## SESSILIVENTRES.

- [Cf. BORRIES (111), BRISCHKE (127), BUYSSON & MARSHALL (149), FOX (298), GASPERINI (320), JAKOWLEW (453), KONOW (510), KRIECHBAUMER (522), KRIEGER (527), NERÉN (631), RILEY (744), SAUSSURE (210), SEMENOW (828).]

## SIRICIDÆ and CEPHIDÆ.

- Cephus niger*, Prussia, BRISCHKE, p. 53, Schr. Ges. Danz. (n.s.) viii;  
*C. carbonarius*, p. 12, *grombcewskii*, p. 13, Turkestan, JAKOWLEW, Hor. Ent. Ross. xxxvi : n. spp.  
*Eversmanella*, n. g., for *Cephus cruentatus*, Eversm.; JAKOWLEW, p. 15, Hor. Ent. Ross. xxvi.  
*Phyllocus sibiricola*, p. 13, *cylindrus*, p. 14, Irkutsk, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.  
*Xiphidria potanini*, Gan-ssu, JAKOWLEW, p. 15, Hor. Ent. Ross. xxvi, n. sp.

## TENTHREDINIDÆ.

- Abia*: table of characters of the subgenera and species; SEMENOW, pp. 513-517, Bull. Pétersb. (n.s.) ii. *A. nigricornis*, larva noticed; BRISCHKE, p. 51, Schr. Ges. Danz. (n.s.) viii.  
*A. symballophthalma*, W. Europe, SEMENOW, p. 510, Bull. Pétersb. (n.s.) ii, n. sp.  
*Allantus monozonus*, ♂ described; KRIECHBAUMER, p. 99, Ent. Nachr. xviii.  
*Amauronematus morawitzi*, p. 24, *jaroslawensis*, Russia, *nigridorsis*, p. 25, *bicolor*, Irkutsk, *glacialis*, Novaja Zemlja, p. 26, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.  
*Allantus potanini*, p. 45, *andreas*, p. 47, *diotroides*, p. 48, Gan-ssu, *superbus*, p. 49, *capucinus*, p. 50, *grombcewskii*, p. 51, *filiola*, p. 52, *heros*, Turkestan, *maculiger*, p. 53, *xylota*, p. 54, Siberia, *semenowi*, Centr. Russia, *mongolicus*, Mongolia, p. 55, *omissoides*, Siberia, p. 56, *jakowlewi*, Turkestan, p. 57, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.  
*Arge cingulata*, Turkestan, p. 16, *forficula*, p. 17, *potanini*, p. 18, *berezowskii*, *subtilis*, p. 19, *zonata*, p. 20, *coriacea*, p. 21, Gan-ssu, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.

- Athalia bicolor*, Transvaal, SAUSSURE, p. 226, in Distant, Naturalist Transvaal, n. sp.
- Blennocampa sibirica*, Irkutsk, JAKOWLEW, p. 29, Hor. Ent. Ross. xxvi, n. sp.
- Cimex americana*, dipterous parasites; TOWNSEND, p. 126, Canad. Ent. xxiv, and ALDRICH, *t. c.* pp. 144 & 145.
- Cladius pectinicornis*, habits; RILEY, Ins. Life, v, pp. 6 & 7, figg.
- C. major*, N. Italy, COBELLI, p. 70, Verh. z.-b. Wien, xlii (*cf.* SB. p. 69, *t. c.*, where this is said to be *C. crassicornis*), n. sp.
- Dolerus grombcewskii*, Turkestan, p. 31, *pusillus*, p. 32, *variegatus*, p. 33, Irkutsk, *purus*, Gan-ssu, p. 34, *asceta*, Thibet, p. 35, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.
- Emphytus arcticus*, Sweden, NERÉN, Ent. Tidskr. xiii, p. 57, n. sp.
- Hylotoma graeffei*, *pallipes*, Triest, KRIECHBAUMER, p. 38, Ent. Nachr. xviii, n. spp.
- Jermakia*, n. g., for *Allantus cephalotes*, Jak.; JAKOWLEW, p. 58, Hor. Ent. Ross. xxvi.
- Lophyrus*: observations on the Danish species and their metamorphoses; BORRIES, Ent. Med. iii, pp. 97-124, pl. ii. *L. rufus*, ravages and metamorphoses; LAMPA, Ent. Tidskr. xiii, pp. 41-44.
- Lyda carpini*, Prussia, BRISCHKE, p. 53, Schr. Ges. Danz. (n.s.) viii; *L. konowi*, Centr. Russia, JAKOWLEW, p. 9, Hor. Ent. Ross. xxvi: n. spp.
- Lygeonematus B. jakowlewi*, Irkutsk, A. JAKOWLEW, p. 28, Hor. Ent. Ross. xxvi, n. sp.
- Macrophya rustica*, hermaphrodite; KRIEGER, Z. Naturw. lxv, p. 138.
- M. dalmatina*, Dalmatia, GASPERINI (320); *M. soror*, p. 43, *potanini*, p. 45, Gan-ssu, JAKOWLEW, Hor. Ent. Ross. xxvi: n. spp.
- Monophadnus athalioides*, Gan-ssu, JAKOWLEW, p. 30, Hor. Ent. Ross. xxvi, n. sp.
- Nematus*: remarks on species of and their parasites; NERÉN, Ent. Tidskr. xiii, pp. 61-67.
- N. insubricus*, Milan, COBELLI, p. 70, Verh. z.-b. Wien. xlii (*cf.* p. 69, SB. *t. c.*, where this is said to be *N. cæruleocarpa*, Htg.); *N. borealis*, West Greenland, FOX, P. Ac. Philad. 1892, p. 133: n. spp.
- Pachynematus quinquemontanus*, Caucasus, *gracilis*, Turkestan, JAKOWLEW, p. 27, Hor. Ent. Ross. xxvi, n. spp.
- Pachyprotasis antennata*, n. var. *chinensis*; JAKOWLEW, p. 43, Hor. Ent. Ross. xxvi.
- P. semenowi*, p. 39, *macrophyoides*, p. 40, *obscura*, *misera*, p. 41, *longicornis*, p. 42, Gan-ssu, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.
- Pæilosoma plana*, Irkutsk, JAKOWLEW, p. 31, Hor. Ent. Ross. xxvi, n. sp.
- Priophorus hyalopterus*, Irkutsk, JAKOWLEW, Hor. Ent. Ross. xxvi, n. sp.
- Pteronus schewyrewi*, Caucasus, *irkutensis*, Siberia, p. 22, *konowi*, Caucasus, *balassagloi*, Turkestan, p. 23, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.

- Rhogogastera robusta*, Gan-ssu, JAKOWLEW, p. 38, Hor. Ent. Ross. xxvi, n. sp.
- Schizocera*: analytic table of the European species; KONOW, Wien. ent. Z. xi, pp. 11-18. *S. privatus*, metamorphoses; MARLATT, Ins. Life, v, pp. 24-26, figg.
- S. ballioni*, Tiflis, p. 19, *similis*, p. 20, *austriaca*, Austria, *humeralata*, Carniolia, p. 21, KONOW, Wien. ent. Z. xi, n. spp.
- Sciopleryx pusilla*, Gan-ssu, JAKOWLEW, p. 35, Hor. Ent. Ross. xxvi, n. sp.
- Selandria bimaculata*, N. Italy, COBELLI, p. 71, Verh. z.-b. Wien, xlii (cf. p. 69, SB. t. c., where this is said to be *S. coronata*, Kl.), n. sp.
- Strongylogaster konowi*, Centr. Russia, JAKOWLEW, p. 30, Hor. Ent. Ross. xxvi, n. sp.
- Synairema sinoni*, Venezuela, BUYSSON, p. 59, Ann. Soc. Ent. Fr. lxi, n. sp.
- Tarpa borealis*, Irkutsk, p. 10, *victoriosa*, Turkestan, p. 11, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.
- Tenthredo maura*, F., synonymical note; KRIECHBAUMER, p. 100, Ent. Nachr. xviii.
- T. ruthena*, Ural Mountains, *pediculus*, p. 59, *stulta*, p. 60, *pulchra*, p. 61, Gan-ssu, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.
- Tenthredopsis kokuewi*, Centr. Russia, p. 36, *ganssuensis*, China, *gracilis*, Irkutsk, p. 37, JAKOWLEW, Hor. Ent. Ross. xxvi, n. spp.
- Trichiosoma pubescens*, E. Siberia, JAKOWLEW, p. 16, Hor. Ent. Ross. xxvi, n. sp.

## (c.) *LEPIDOPTERA*.

Wing neururation ; SPULER (881).

*Lepidoptera* to be divided into two suborders : *Frenatæ* and *Jugatæ* ;

COMSTOCK, P. Am. Ass. xli, p. 200.

Mode of development of wings after leaving the pupal skin ; PETERSEN (675).

The peculiarities of the scale-pigments in numerous *Lepidoptera* ; URECH (958).

Histology of metamorphosis ; BUGNION (149).

Histology of alimentary canal of larvæ ; HOLMGREN (411).

Value of appearance of sexes at different times ; PETERSEN (676).

*Lepidoptera* reared in Zoological Gardens, London ; THOMSON, P. Z. S. 1892, pp. 193-195.

## *RHOPALOCERA*.

[Cf. ALPHERAKY (779), AURIVILLIUS (23), BAKER (30), BRANCSIK (115), BUTLER (141), BUTLER & ROTHSCHILD (147), COSMOVICI (191), DRUCE (227), ECKSTEIN (245), EDWARDS (246, 247), ELWES (248), HAGEN (383), HOLLAND (406, 407, 408, 409, 410), HONRATH (412), HORMUZAKI (415), KARSCH (460, 461, 462, 463), LEECH (542), MABILLE & VUILLOT (573), MANDERS (579), MOORE (622), NICÉVILLE (638), OBERTHUR (650), POSTANS (701), POUJADE (702), RIPON (755, 756), ROBBE (766), RÖBER (767), ROGENHOFER (777, 778), ROTHSCHILD (782, 783), RÜHL (789), SCUDDER (813), SEMPER (835), SKINNER (847, 848, 849), SMITH (857), SMITH & KIRBY (858), SNELLEN (869, 870, 871, 874, 876), SPULER (882), STANDFUSS (884), STAUDINGER (779, 885, 886, 888, 889, 890, 892, 893, 894), TRYON (954), VUILLOT (979), WEYMER (1003), WRIGHT (1016, 1017).]

Remarks on upwards of 100 species of *Rhopalocera* found in Southern Siberia ; STAUDINGER, Deutsche e. Z. Lep. v, pp. 301, etc.

The *Rhopalocera* of Amurland discussed ; STAUDINGER, pp. 83-219, Romanoff Mem. vi.

Remarks on Haase's system of *Rhopalocera*, SEITZ, S. E. Z. liii, pp. 157-159.

Obtaining eggs in captivity ; WRIGHT, Canad. Ent. xxiv, pp. 70-74.

## PAPILIONIDÆ.

Phylogeny of *Papilionidæ* ; SPULER (882).

*Cosmodesmus*, n. subg. of *Papilio* ; HAASE, Bibl. Zool. Heft. viii, p. 15.

- Doritis apollinus*, varr. described ; STAUDINGER, p. 225, Deutsche e. Z. Lep. iv.
- Druryia antimachus*, ♀ noticed ; WATKINS, Ent. xxv, p. 143 : ♀ described ; STAUDINGER, p. 270, Deutsche e. Z. Lep. v.
- Ornithoptera arruana*, n. var. *valentina* ; VUILLOT, p. cxxiv, Bull. Soc. Ent. Fr. lxi. *O. flavicollis*, var., = (*olympia*, Honr.), figured, pl. xv, fig. 1 ; HONRATH, p. 429, Berl. Ent. Zeit. xxxvi. *O. (Priamoptera) lydius*, *O. (Pompeoptera) nereis*, figured ; RIPPON, Ornithopt. Icones. *O. riedeli* figured ; SMITH & KIRBY, Rhop. ex. ii, *Papilionidæ*, *Papilioninæ*, *Ornithoptera*, ii. *O. zalmoxis*, ♀ described ; STAUDINGER, p. 268, Deutsche e. Z. Lep. v. *O. priamus*, sexes of var. from Ké Is., described ; RÖBER, pp. 263-268, Tijdschr. Ent. xxxiv. *O. poseidon*, variation ; TRYON (1954).
- O. andromache*, N. E. Borneo, STAUDINGER, p. 393, Deutsche e. Z. Lep. v ; *O. eumæus*, Aru Is., RIPPON, p. 193, Ann. N. H. (6) x : also figured and described in RIPPON, Ornithopt. Icones : n. spp.
- Papilio* : the following figured and noticed—*P. (Menelaides) annæ*, pl. xlvii, fig. 2, *phlegon*, fig. 3, p. 271, *P. (Atrophaneura) semperi*, pl. xlvii, figs. 1-3, p. 272, *P. (Araminta) antonio*, fig. 4, p. 274, *P. (Pathysa) anti-phates*, pl. xlviii ; SEMPER, Reisen Philipp. ii, v. *P. machaon*, varieties ; AUSTAUT, Le Nat. 1892, pp. 13, &c. *P. machaon* and *xuthus*, note on red markings of hind wings of ; SANSOM, Ent. xxv, p. 43. *P. androgeos*, n. var. *depelchini* ; ROBBE, p. 125, Ann. Ent. Belg. xxxvi. *P. alexanor*, n. var. *maccabeus* ; STAUDINGER, p. 224, Deutsche e. Z. Lep. iv. *P. macareus*, var. noticed and figured ; NICÉVILLE, p. 345, pl. i, fig. 1, J. Bomb. N. H. Soc. vii. *P. neumogeni*, figured, pl. xv, fig. 2, *neptunus*, n. var. *fehri*, p. 432 ; HONRATH, Berl. Ent. Zeit. xxxvi. *P. schönbergianus*, ♀ described ; HONRATH, p. 441, Berl. Ent. Zeit. xxxvi. *P. anactus*, figured, pl. xvi ; SCOTT, Austral. Lep. ii, *surpedon*, *lycaon*, pl. xvii. *P. sisenna*, figured ; MABILLE & VUILLOT, pl. x, fig. 4, Nov. Lep. *P. gelon* and var. described and figured ; ROTHSCHILD, Tr. E. Soc. 1892, p. 141, pl. iv. *P. antimachus*, ♀ noticed, p. 162, figured, pl. v, p. 189 ; WATKINS, Ent. M. M. xxviii. *P. cresphontes*, early stages ; BEUTENMÜLLER, p. 75, Bull. Am. Mus. iv. *P. asterias*, ind. of mixed sexes ; EDWARDS, Canad. Ent. xxiv, p. 49.
- P. richelmanni*, E. Africa, WEYMER, p. 98, S. E. Z. liii ; *P. policensoides*, W. Africa, HOLLAND, p. 287, Ann. N. H. (6) x ; *P. catoris*, N. Borneo, SMITH, p. 426, Ann. N. H. (6) x ; *P. (Achillides) discordia*, Sumatra, NICÉVILLE, p. 343, pl. i, fig. 2, J. Bomb. N. H. Soc. vii ; *P. godmani*, Alor, RÖBER, p. 271, Tijdschr. Ent. xxxiv (fig. in xxxv) ; *P. hollandii*, Colorado, EDWARDS, p. 50, Canad. Ent. xxiv ; *P. mathani*, Upper Amazons, OBERTHUR, Études d'Ent. xvi, p. 1, pl. ii, figs. 8 & 12 ; *P. garleppi*, p. 427, *lamarchei*, p. 428, Bolivia, STAUDINGER, Deutsche e. Z. Lep. v : n. spp.
- Parnassius* : mode of formation of pouch, with new organ called peraplast ; SCUDDER, pp. 249-253, Tr. E. Soc. 1892 ; and discussion, P. E. Soc. 1892, p. xxxiii. *P. apollo*, var. described ; BOSSANYI,

- Jahresh. Ver. Trencsin. xiii, p. 79. *P. delphius*, n. var., *cæcus*; DÖNITZ, Ent. Nachr. xviii, p. 193, fig. *P. delphius*, var. *stenosemus*, figured; HONRATH, Berl. Ent. Zeit. xxxvi, pl. xv, fig. 3. *P. delius*, larva noticed and described; SELLO, Ent. xxv, p. 234 : n. var., *leonhardi*; RÜHL, p. 105, Soc. Ent. vii. *P. orleans*, pl. ii, fig. 14, *orleans-groumi*, fig. 10, p. 3, *szechenyi*, pl. ii, figs. 11 & 13, p. 3, noticed and figured; OBERTHUR, Études d'Ent. xvi.
- P. poeta*, Thibet, OBERTHUR, p. 2, pl. ii, fig. 9, Études d'Ent. xvi, n. sp.
- Pharmacophagus*, n. subg. of *Papilio*; HAASE, Bibl. Zool. Heft. viii, p. 15.
- Sericanus telamon*, variation and larva described; STAUDINGER, pp. 130-136, Romanoff Mem. vi.
- Thais polyxena*, n. var., *bipunctata*; COSMOVICI, Le Nat. 1892, p. 254.

## PIERIDÆ.

- Anthocharis charltonia*, varr. described; STAUDINGER, pp. 227-229, Deutsche e. Z. Lep. iv. *A. sara* and *reakirtii* are dimorphic forms; EDWARDS, pp. 52 & 109, Canad. Ent. xxiv.
- A. flora*, Washington, WRIGHT, p. 154, Canad. Ent. xxiv, n. sp.
- Appias lalassis*, Smith, = (*Pieris indroides*, Honr.); WEYMER, p. 121, S. E. Z. liii.
- A. flavius*, N. Borneo, SMITH, p. 427, Ann. N. H. (6) x; *A. dohertyi*, Celebes, ROTHSCILD, p. 441, pl. v, fig. 1, Deutsche Z. Lep. v : n. spp.
- Aporia crategi*, notes on, irregular appearance, odour, metamorphoses, &c; ECKSTEIN, Zool. Jahrb. Syst. vi, pp. 230-240. *A. potanini*, distinct from *martineti*; ALPHÉRAKY, p. 1, Romanoff Mem. vi.
- Belenois antsianaka*, n. varr., *drurii*, figs. 4 & 5, *persimilis*, figs. 6 & 7, *B. ramona*, figs. 1, 2, & 3, figured; SMITH & KIRBY, Rhop. ex., *Papilionidæ*, *Pierinæ*, *Belenois*, i. *B. lasti*, *nagare*, *majungana*, *isokani*, figured; SMITH & KIRBY, Rhop. ex. ii, *Papilionidæ*, *Pierinæ*, *Belenois*, pl. ii.
- Callidryas eubule*, life history of; DYAR, Canad. Ent. xxiv, p. 7. *C. sennæ*, habits; PANTON, J. Inst. Jamaica, i, p. 106.
- Callosune bacchus* and *mrogoroana*, distinctions of; VUILLOT, p. viii, Bull. Soc. Ent. Fr. lxi.
- Colias*: characters of the palæarctic species; BRAMSON, Le Nat. 1892, pp. 83, 91, 104. *C. vautieri*, Guer., = (*flaviola*, Blanch., *minuscule*, Butl.); REED, p. 68, Act. Soc. Chili, i. *C. wiskotti*, varr. described; STAUDINGER, pp. 230-232, Deutsche e. Z. Lep. iv. *C. werdandi*, and *hecla*, varietal note; LAMPA, Ent. Tidskr. xiii, p. 249. *C. viluensis*, note on; GRAESER, p. 210, Berl. Ent. Zeit. xxxvii. *C. edusa*, earlier stages; FROHAWK, Ent. xxv, p. 201. *C. hyale*, earlier stages; FROHAWK, t. c. pp. 271-274. *C. christina*, larva and pupa noticed; EDWARDS, p. 110, Canad. Ent. xxiv. *C. scudderi* and *nastes*, food-plants; EDWARDS, p. 54, *meadii* and *elis*, characters noticed, p. 55, Canad. Ent. xxiv. *C. philodice*, albino; EDWARDS, p. 49, t. c.

- Delias abnormis*, n. var. *euryxantha*; HONRATH, p. 435, Berl. Ent. Zeit. xxxvi. *D. peribæa*, n. var. *wallacei*; ROTHSCHILD, p. 441, pl. v, fig. 2, Deutsche e. Z. Lep. v.
- D. parthenia*, Borneo, STAUDINGER, p. 449, Deutsche e. Z. Lep. v; *D. tobahana*, p. 571, *hageni*, p. 572, Sumatra, ROGENHOFER, Verh. z.-b. Wien, xlii : n. spp.
- Eronia cleodora*, n. var. *latimarginata*; WEYMER, p. 96, S. E. Z. liii.
- Huphina celebensis*, p. 439, pl. iv, figs. 1 & 2, *dissimilis*, p. 440, pl. v, figs. 5 & 6, ROTHSCHILD, Deutsche e. Z. Lep. v, n. spp.
- Icias flavipennis*, Smith, = (*pyritis*, Weym.); WEYMER, p. 121, S. E. Z. liii.
- I. kühni*, Wetter, RÖBER, p. 287, Tijdschr. Ent. xxxiv (fig. in xxxv), n. sp.
- Leuconea cratægi*, n. var. *alepica*; COSMOVICI, p. 254, Le Nat. 1892.
- Leucophasia amurensis*, n. var. *vernalis*; GRAESER, p. 209, Berl. Ent. Zeit. xxxvii.
- Metuporia harrietae*, Bhutan, NICÉVILLE, p. 341, pl. i, fig. 1, J. Bomb. N. H. Soc. vii, n. sp.
- Pieris (Mylothris) rubricosta*, Mab., = (*mackenziana*, Sharpe), p. 61, figured, pl. x, fig. 3; MABILLE & VUILLOT, Nov. Lep. *P. rapæ*, var.; SWIERSTRA, p. 337, pl. xvii, figs. 1 & 2, Tijdschr. Ent. xxxiv.
- P. oberthuri*, figured, pl. i, fig. 2, *P. larraldei*, n. var. *melania*, p. 5, pl. i, fig. 5, *nutans*, p. 6, fig. 3; OBERTHUR, Études d'Ent. xvi; *P. zeusippe*, ♂ var. figured; POUJADE, pl. xi, figs. 1 & 1a, N. Arch. Mus. Paris (3) iii. *P. brassicæ*, immigration noticed; KERRY, Essex Nat. vi, p. 205. *P. brassicæ* and *rapæ*, pupal variation in colour; POULTON, Tr. E. Soc. 1892, pp. 437-446. *P. oleracea* and *Pontia protodice* are disappearing in N. America where *P. brassicæ* is introduced, Soc. Ent. vii, p. 94; but cf. SMITH, t. c. p. 131.
- P. hilara*, W. Africa, KARSCH, p. 169, Ent. Nachr. xviii; *P. hastata*, Yunnan, OBERTHUR, p. 5, pl. i, fig. 6, Études d'Ent. xvi; *P. fruhstorferi*, Java, HONRATH, p. 434, pl. xv, figs. 4 & 4a, Berl. Ent. Zeit. xxxvi; *P. oberthuri*, p. 277, *synchroma*, p. 278, Flores, RÖBER, Tijdschr. Ent. xxxiv (figg. in xxxv) : n. spp.
- Tachyris adelpha*, Alor, p. 281, *paula*, Wetter, p. 282 (with fig. in xxxv), RÖBER, Tijdschr. Ent. xxxiv, n. spp.
- Terias mandarinula*, E. Africa, HOLLAND, Ent. xxv (Supp.) p. 91, n. sp.
- Thestias reinwardtii*, figured, pl. xv, fig. 2, noticed, p. 249; SNELLEN, Tijdschr. Ent. xxxiv. *T. flavipennis*, ♀ figured; SWIERSTRA, pl. 16 : described; SNELLEN, p. 335, t. c.

## DANAIDÆ.

- Anosia plexippus*, note on early larva; SCUDDER, Psyche, vi, p. 250.
- Chlorochropsis*, n. g., for *C. dohertyi*, n. sp., Celebes, pl. iv, fig. 3; ROTHSCHILD, p. 430, Deutsche e. Z. Lep. v.
- Elsa*, n. g., near *Danaïs*, for *E. morgeni*, n. sp., Cameroons; HONRATH, p. 436, pl. xv, fig. 5, Berl. Ent. Zeit. xxxvi.

- Euplœa schreiberi*, Butl., = (*maasseni*, Weym.); WEYMER, p. 119, S. E. Z. liii. *E. alcatheæ*, p. 1, *doubledayi*, *durrsteini*, = (*mesocala*), p. 2, synonymy; SNELLEN, Tijdschr. Ent. xxxv. *E. perdita*, n. var., *swierstræ*; SNELLEN, p. 339, pl. xvii, fig. 4, Tijdschr. Ent. xxxiv. *E. callithoë*, ♀ described; TRYON (954). *E. hansemanni*, ♀ described and figured, p. 442, pl. xv, fig. 6, *callithoë*, ♀ described, p. 443; HONRATH, Berl. Ent. Zeit. xxxvi. *E. corinna*, figured; SCOTT, Austral. Lep. ii, pl. xvi. *E. harrisii* and allies, great variability; NICÉVILLE, p. 247, Tr. E. Soc. 1892.
- E. kuhni*, Flores, p. 294 (fig. in vol. xxxv), *oropina*, Wetter, p. 296, *sobrina*, Goram, *neptis*, Flores, p. 297, *nepos*, Goram, p. 298 (fig. in xxxv), *jacobseni*, Wetter, p. 299 (fig. in xxxv), *compta*, Timor Laut, p. 300 (fig. in xxxv), RÖBER, Tijdschr. Ent. xxxiv, n. spp.
- E. (Calliplœa) parvior*, N. Guinea; TRYON (954).
- Glinama euctemon*, ♀ = (*configurata*, Feld.); ROTHSCILD, p. 432, Deutsche e. Z. Lep. v.
- Nasuma celebensis*, Celebes, STAUDINGER, p. 431, pl. iv, fig. 4, Deutsche e. Z. Lep. v. n. sp.

## ACRÆIDÆ and HELICONIDÆ.

- Acræa (Telchinia) anemosa*, *buettneri*, abdominal pouch of ♀ figured; ROGENHOFER, pp. 574, 575, & 579-581, Verh. z.-b. Wien, xlii. *A. vesperalis*, figs. 1 & 2, *crystallina*, figs. 3 & 4, *bomba*, figs. 5 & 6, *nelsoni*, figs. 9 & 10, figured; SMITH & KIRBY, Rhop. ex. *Nymphalidæ*, *Acræinæ*, *Acræa*, pl. iii. *A. cerasa*, *iturina*, *igola*, *andromba*, ♂ ♀, *nombasæ*, figured, SMITH & KIRBY, t. c., *Nymphalidæ*, *Acræinæ*, *Acræa*, iv. *A. dohertyi*, ♀ described and figured; ROTHSCILD, p. 435, Deutsche e. Z. Lep. v.
- A. ombria*, p. 82, *albomaculata*, p. 83, E. Africa, *adrasta*, W. Africa, p. 85, WEYMER, S. E. Z. liii; *A. balina*, W. Africa, KARSCH, p. 170, Ent. Nachr. xviii; *A. (Telchinia) welwitschii*, Angola, ROGENHOFER, p. 573, Verh. z.-b. Wien, xlii; *A. pharsaloides*, *minima*, *abbottii*, E. Africa, HOLLAND, Ent. xxv (Supp.) p. 89; *A. marmorata*, Madagascar, SMITH & KIRBY, Rhop. ex. *Nymphalidæ*, *Acræinæ*, *Acræa*, p. 9, pl. iii: n. spp.
- Heliconius rubellius*, figs. 1 & 2, Columbia, *amandus*, fig. 3, p. 1, *phyllidis*, fig. 4, p. 2, *anacreon*, fig. 5, p. 3, SMITH & KIRBY, Rhop. ex. *Nymphalidæ*, *Heliconinæ*, *Heliconius*, i, n. spp.

## NYMPHALIDÆ.

- Abrota pratti*, figured; LEECH, pl. xiv, figs. 7 & 8, Butt. China.
- Ageronia*: sound-apparatus described; HAMPSON, P. Z. S. 1892, p. 190.
- Annosia martini*, Sumatra, HONRATH, p. 439, Berl. Ent. Zeit. xxxvi, n. sp.

- Apatura*: Chinese species figured, and varr. described; LEECH, pp. 153-164, pls. xv & xvi, Butt. China. *A. fasciola, subcaerulea, fulva*, Leech, figured; SMITH & KIRBY, Rhop. ex. *Nymphalidae, Nymphalinee, Apatura*, i.
- Apatura laverna*, China, LEECH, p. 164, pl. xv, fig. 6, Butt. China, n. sp.
- Araschnia*: Chinese species figured, varr. described; LEECH, pp. 268-275, pl. xxvi, Butt. China.
- A. doris*, China, LEECH, p. 272, pl. xxvi, figs. 4 & 5, Butt. China, n. sp.
- Argynnis*: Chinese species figured, and varr. described; LEECH, pp. 222-244, pls. xxii-xxiv, Butt. China. *A. zenobia*, figured; OBERTHUR, p. 7, pl. i, fig. 1, Études d'Ent. xvi. *A. lathonoides*, = (*anna*, Blanchd.); REED, p. 68, Act. Soc. Chili, i. *A. pales*, n. var. *killiasi*; RÜHL, Soc. Ent. vii, p. 113. *A. pandora*, n. var. *dacica*; HORMUZAKI, Ent. Nachr. xviii, p. 1. *A. paphia*, n. var. *nigricans*, COSMOVICI, p. 256, Le Nat. 1892. *A. epithore*, early stages; EDWARDS, p. 108, Canad. Ent. xxiv. *A. paphia*, colour of larva and surroundings; POULTON, Tr. E. Soc. 1892, p. 437. Oviposition in species of, SKINNER, p. 128, Canad. Ent. xxiv.
- A. rosea*, Roumania, COSMOVICI, p. 256, Le Nat. 1892; *A. penelope*, Amurland, STAUDINGER, p. 195, Romanoff Mem. vi, and p. 339, Deutsche e. Z. Lep. iv; *A. ornatissima*, China, LEECH, p. 234, pl. xxii, figs. 1 & 2, Butt. China; *A. oweni*, Mt. Shasta, p. 105, *cornelia*, Colorado, p. 106, EDWARDS, Canad. Ent. xxiv: n. spp.
- Atella sinha*, specific validity; SNELLEN, p. 5, Tijdschr. Ent. xxxv.
- Athyma*: Chinese species figured, varr. described; LEECH, pp. 167-176, pls. xvi & xvii, Butt. China.
- A. recurva*, W. China, LEECH, p. 176, pl. xvii, fig. 9, Butt. China; *A. ambra*, Borneo, STAUDINGER, p. 452, Deutsche e. Z. Lep. v: n. spp.
- Catuna duodecimpunctata*, note on; SNELLEN, p. 4, Tijdschr. Ent. xxxv.
- Charaxes agoba*, Dist., = (*homerus*, Stdgr.), *porthos*, Smith, = (*midas*, Stdgr.); STAUDINGER, p. 223, Deutsche e. Z. Lep. iv. *C. nichetes*, Smith, = (*ogovensis*, Holl., = *hamatus*, Dew.), *C. hildebrandti*, Dew., = (*talagugæ*, Holl.); WEYMER, p. 120, S. E. Z. liii. *C. rothschildi*, n. n. for *ganymedes*, Leech, nec Westw., p. 128, figured, pl. xiv, fig. 3; LEECH, Butt. China. *C. pelias*, n. var. *tanganika*; ROBBE, p. 132, Ann. Ent. Belg. xxxvi. *C. nitebis*, figured, pl. vi, fig. 3, *C. mars*, n. var. *dohertyi*, p. 437, pl. vi, fig. 2, Deutsche e. Z. Lep. v.
- C. lactetinctus*, W. Africa, KARSCH, p. 113, Ent. Nachr. xviii; *C. odysseus*, W. Africa, p. 260, *georgius*, Mindoro, p. 262, STAUDINGER, Deutsche e. Z. Lep. v.: n. spp.
- Cirrochroa niassica*, Nias I., HONRATH, p. 437, Berl. Ent. Zeit. xxxvi, n. sp.
- Crenis umbrina*, W. Africa, KARSCH, p. 114, Ent. Nachr. xviii; *C. garega*, W. Africa, KARSCH, p. 173, t. c.: n. spp.
- Cymothoe blassi*, E. Africa, WEYMER, p. 90, S. E. Z. liii, n. sp.
- Doleschallia Pfeili*, New Ireland, HONRATH, p. 438, pl. xv, fig. 7, Berl. Ent. Zeit. xxxvi, n. sp.

- Euphædra edwardsii*, Hoeven, = (*pralinas*, Dbl.), *inanim*, Butl., = (*vespasia*, Moesch.); WEYMER, p. 120, S. E. Z. liii.
- E. judith*, Sierra Leone, WEYMER, p. 88, S. E. Z. liii, n. sp.
- Euptoieta hortensia*, Blanch., = (*Argynnis valdiviana*, Phil.) ; REED, p. 68, Act. Soc. Chili, i.
- Eurytela velleda*, figured, pl. x, fig. 1 ; MABILLE & VUILLOT, Nov. Lep.
- Euthalia* : Chinese species figured and varr. described ; LEECH, pp. 135-140, pl. xxi, Butt. China.
- E. pyrrha*, China, LEECH, p. 137, pl. xxi, fig. 4, Butt. China, n. sp.
- Godartia* : generic characters and components ; SNELLEN, p. 8, Tijdschr. Ent. xxxv.
- Grapta gigantea*, figured, pl. xxv, fig. 6, *c-album*, varr. described ; LEECH, pp. 263-265, Butt. China.
- Harma cænis*, migration of, larva and chrysalis figured ; HOLLAND, Psyche, vi, pl. v, figs. 4 & 5, p. 215.
- Harmilla*, n. g., near *Cymothoë*, for *H. elegans*, n. sp., Cameroons ; AURIVILLIUS, p. 200, Ent. Tidskr. xiii.
- Hestina mena*, variation ; LEECH, p. 143, Butt. China.
- Hypolimnas angustolimbata*, E. Africa, WEYMER, p. 87, S. E. Z. liii, n. sp.
- Junonia touhilimasa*, Tanganyika, VUILLOT, p. cxlviii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Kallima spiridion*, *knycetti*, figured ; SMITH & KIRBY, Rhop. ex. *Nymphalidæ*, *Kallima*, i.
- Limnitis* : Chinese species figured, varr. described, pp. 178-188, pls. xvi & xvii ; LEECH, Butt. China. *L. sibylla*, n. var. *stenotenia* ; HONRATH, p. 440, Berl. Ent. Zeit. xxxvi. *L. albomaculata*, figured and described ; OBERTHUR, p. 7, pl. ii, fig. 15, Études d'Ent. xvi. *L. weidemeyerii*, early stages ; EDWARDS, p. 107, Canad. Ent. xxiv.
- L. doerriesi*, Amurland, STAUDINGER, p. 173, pl. xiv, fig. 1, Romanoff Mem. vi ; *L. hageni*, Sumatra, STAUDINGER, p. 452, Deutsche e. Z. Lep. v : n. spp.
- Melitæa* : Chinese species figured ; LEECH, pl. xxiv, Butt. China. *M. maculata*, Brem., generic position ; SNELLEN, p. 6, Tijdschr. Ent. xxxv. *M. anicia*, larva going over two years ; EDWARDS, p. 53, Canad. Ent. xxiv. *M. chalcedon*, oviposition ; KUNZE, p. 190, Canad. Ent. xxiv.
- M. bellona*, W. China, LEECH, p. 219, pl. xxiv, figs. 1-5, Butt. China, n. sp.
- Neptis* : Chinese species figured, varr. described ; LEECH, pp. 190-207, pls. xviii & xix, Butt. China. *N. biafra*, n. var. *continuata* ; HOLLAND, Ent. News, iii, p. 249.
- Neptis nicobule*, *metanira*, *mixophyes*, Ogowe Valley, HOLLAND, Ent. News, iii, p. 249, pl. ix ; *N. thestias*, W. China, LEECH, p. 196, pl. xviii, fig. 3, Butt. China ; *N. patalina*, Philippine Is., SEMPER, p. 347, Reisen Philipp. ii, v ; *N. florensis*, Flores, SNELLEN, p. 238, Tijdschr. Ent. xxxiv : n. spp.
- Nymphalis freyi*, Nossibé, BRANCSIK, p. 161, pl. vii, fig. 8, Jahresh. Ver. Trencsin, xiii, n. sp.

- Palla lichas*, Dbl., p. 93, *falcata*, Butl., p. 94, ♀s described; WEYMER, S. E. Z. liii.
- P. publius*, Sierra Leone, STAUDINGER, p. 267, Deutsche e. Z. Lep. v; *P. rectifascia*, W. Africa, WEYMER, p. 91, S. E. Z. liii: n. spp.
- Phyciodes gorgone*, Hub., = (*ismeria*, Boisd., and *carlota*, Reak.); WEYMER, p. 119, S. E. Z. liii.
- Precis serena*, Sierra Leone, WEYMER, p. 86, S. E. Z. liii, n. sp.
- Prothoë calydonia*, = (*belisama*, Crowley); WEYMER, p. 120, S. E. Z. liii.
- Pseudacraea uhelda*, Mab., figured; MABILLE & VUILLOT, pl. x, fig. 2, Nov. Lep. *P. poggei*, ♂ described and figured; BUTLER & ROTHSCCHILD, p. 202, pl. x, fig. 2, Tr. E. Soc. 1892.
- P. warburgi*, Cameroons, AURIVILLIUS, Ent. Tidskr. xiii, p. 200; *P. clarkii*, Congo River, BUTLER, p. 201, pl. x, fig. 1, Tr. E. Soc. 1892: n. spp.
- Pseudargynnis*, n. g., for *Catuna duodecimpunctata*, auct.; KARSCH, p. 173, Ent. Nachr. xviii.
- Pyrameis cardui*, life-history; DYAR, Canad. Ent. xxiv, p. 6. *P. itea*, phylogenetic note; SMITH, p. 27, Ent. xxv.
- Rahinda sandaka*, Borneo, BUTLER, p. 120, P. Z. S. 1892, n. sp.
- Stibochiona persephone*, Borneo, STAUDINGER, p. 451, Deutsche e. Z. Lep. v, n. sp.
- Symbrenthia lucina*, *hippoclus*, distinctive characters; SEMPER, p. 342, Reisen Philipp. ii, v.
- Terinos novæ-guineensis*, New Guinea; TRYON (954), n. sp.
- Thaleropsis trigona*, W. Africa, HOLLAND, Ann. N. H. (6) x, p. 284, n. sp.
- Timelea nana*, W. China, LEECH, p. 246, pl. xxiii, fig. 8, Butt. China, n. sp.
- Vanessa fenestra*, Leech, referred to *Dilipa*, = (*Apatura chrysus*, Oberth.), p. 165, figured, pl. xiv, fig. 2; LEECH, Butt. China. *V. urticae*, variation in China; LEECH, p. 258, pl. xxv, fig. 1, Butt. China: variation produced by exposure of pupæ to different temperatures; MERRIFIELD, p. 36, Tr. E. Soc. 1892. *V. urticae* and *io*, colour of pupa and surroundings; POULTON, pp. 391-402, *polychloros* and *atalanta*, pp. 432-437. *V. urticae*, gilded appearance of pupæ discussed; BATESON, p. 210-214.
- Vanessula*: characters and position discussed, *V. milca*, fig., p. 171, *V. (sub Liptena) milca*, Hew., = (*buchneri*, Dew.), p. 172; KARSCH, Ent. Nachr. xviii.

## MORPHIDÆ.

- Clerome ærope*, figured, pl. i, fig. 4; LEECH, Butt. China.
- Discophora dis*, Sumatra, &c., NICÉVILLE, p. 325, pl. H, fig. 3, J. Bomb. N. H. Soc. vii, n. sp.
- Enispe lunatus*, figured; LEECH, Butt. China, pl. i, figs. 1 & 2.
- Morpho sulkowskyi*, n. var. *psyche*; STAUDINGER, Deutsche e. Z. Lep. iv, p. 197.
- Stichophthalma howqua*, var. figured, pl. i, fig. 3; LEECH, Butt. China.
- S. neumogeni*, W. China, LEECH, p. 114, pl. i, fig. 5, Butt. China, n. sp.

## SATYRIDÆ.

MOORE continues his descriptions and figures of E. Indian *Satyridæ* in Lep. Ind. i, pp. 177-310, pls. lxx-xciv.

*Acrophthalmia thalia*, figured; LEECH, pl. x, fig. 1, Butt. China.

*A. misarte*, Philippines, SEMPER, p. 327, Reisen Philipp. ii, v, n. sp.

*Amechera majuscula*, W. China, LEECH, Butt. China, p. 67, pl. xii, fig. 6, n. sp.

*Archondes*, n. g., type, *Lethe lanaris*, Butl.; MOORE, p. 270, Lep. Ind. i.

*Bicyclus ephorus*, W. Africa, WEYMER, p. 79, S. E. Z. liii, n. sp.

*Blanida pulahoides*, Naga Hills, MOORE, p. 304, pl. 94, fig. 2, Lep. Ind. i, n. sp.

*Callarge*, n. g. for *Zethera sagitta*, Leech, which is figured, pl. xii, fig. 1; LEECH, p. 57, Butt. China.

*Callerebia phyllis*, *albipuncta*, *orixa*, figured; LEECH, pls. ix & xii, Butt. China.

*Calysime perseoides*, Burma, p. 179, pls. lx, fig. 2, & lxi, fig. 1, *nicobarica*, Nicobar Is., *intermedia*, p. 187, *subdita*, p. 194, pl. lxxv, figs. 1, a-h, E. India, *rama*, pl. 57, fig. 3, Ceylon, *andamana*, pl. 66, fig. 1, Andaman Is., p. 196, MOORE, Lep. Ind. i, n. spp.

*Catargynnis*, n. n. for *Pseudomaniola* (*infra*); RÖBER, p. 284, Exot. Schmett. Theil ii.

*Chionobas chryxus*, *calais*, figured, *Chionobas* ii, *jutta*, *Chionobas* v, *crambis*, *brucci*, *Chionobas* vi; EDWARDS, Butt. N. Am. (3).

*Choranesa*, n. g., type *Lethe trimacula*, Leech; MOORE, p. 270, Lep. Ind. i.

*Cærites adamsoni*, p. 229, pl. 75, fig. 1, *binghami*, p. 230, fig. 3, E. India, MOORE, Lep. Ind. iii, n. spp.

*Cænonympha pamphilus*, n. var. *bi-pupillata*; COSMOVICI, p. 264, Le Nat. 1892.

*Debis* (sub *Satyrus*) *hyrania*, Koll., = (*goalpara*, Moore), p. 3, *sumio*, Dbl., = (*manthara*, Feld.), p. 4; SNELLEN, Tijdschr. Ent. xxxv.

*Dionana*, n. g., type *Lethe margaritæ*, Elw.; MOORE, p. 271, Lep. Ind. i.

*Epinephele monarchus*, Bl., = (*valdiviæ*, Feld.); REED, p. 68, Act. Soc. Chili, i. *E. tithonus*, n. var. *mincki*; SEEBOLD, p. 467, Berl. Ent. Zeit. xxxvi. *E. janira*, var. *cinerascens*; FUCHS, JB. nass. Ver. xlv, p. 85.

*E. cinerea*, *erebiformis*, Roumania, COSMOVICI, p. 264, Le Nat. 1892, n. spp.

*Erebia*: Chinese species figured, varr. described, LEECH, pl. ix, pp. 97-101, Butt. China. *E. medusa*, n. var. *procopiani*; HORMUZAKI, Ent. Nachr. xviii, p. 2. *E. sofia*, Streck., = (*ethela*, Edw.); STRECKER, Ent. News, iii, p. 255. *E. melas*, metamorphoses; DOGNIN, p. 211, Le Nat. 1892.

*E. nigra*, Roumania, COSMOVICI, p. 264, Le Nat. 1892, n. sp.

*Harima*, n. g., type *Neope callipteris*, Butl.; MOORE, p. 299, Lep. Ind. i.

*Idiomorphus vala*, larva described; HOLLAND, Psyche, vi, p. 214.

*Kerrata*, n. g., for *Lethe tristigmata*, Elw.; MOORE, p. 285, Lep. Ind. i.

- Kirrodesa*, n. g., type *Debis sicelis*, Hew.; MOORE, p. 237, Lep. Ind. i.
- Lethe*: Chinese species figured, and varr. described; LEECH, pp. 18-40, pls. iii-vi, Butt. China.
- L. proxima*, W. China, LEECH, p. 32, pl. vi, fig. 8, Butt. China, n. sp.
- Mandarinia*, n. g., for *Mycalesis regalis*, Leech; LEECH, Butt. China, p. 9.
- Melanargia leda*, Leech, = (*Arge yunana*, Oberth.); LEECH, p. 60, Butt. China. *M. titea*, n. var. *titania*; STANDFUSS, p. 659, pl. xv, fig. 1, Romanoff Mem. vi.
- M. grumi*, Kurdistan, STANDFUSS, p. 661, pl. xv, fig. 2, Romanoff Mem. vi, n. sp.
- Mycalesis*: Chinese species figured and n. varr. described; LEECH, pp. 10-15, pl. ii, Butt. China. *M. dinon*, Hew., = (*Messarar ophthalmicus*, Westw.); WEYMER, p. 119, S. E. Z. liii.
- M. anisops*, W. Africa, KARSCH, p. 176, Ent. Nachr. xviii; *M. unica*, Moupin, LEECH, Butt. China, p. 15, pl. ii, fig. 9; *M. kina*, Borneo, STAUDINGER, p. 451, Deutsche e. Z. Lep. v; *M. (Calysisme) pernotata*, N. Guinea, TRYON (954): n. spp.
- Nemetis*, n. g. (for *Lethe* group, 1 pt., Nicéville); MOORE, p. 237, Lep. Ind. i.
- Neomanas servilia*, Wllgr., = (*Satyrys decorata*, Butl.); REED, p. 68, Act. Soc. Chili, i.
- Neope*: Chinese species figured, pls. vii & viii, varr. described, pp. 48 & 54; LEECH, Butt. China.
- Neorina patria*, Leech, figured, pl. xii, fig. 2; LEECH, Butt. China.
- N. westwoodii*, p. 226, pl. lxxiv, fig. 2, E. India, MOORE, Lep. Ind. i, n. sp.
- Neosatyrys ambiorix*, Wllgr., = (*minimus*, Butl.), *violaceus*, Butl., = (*ochreivittatus*, Butl.); REED, p. 68, Act. Soc. Chili, i.
- Ninguta*, n. g., type *Pronophila schrenkii*, Men.; MOORE, p. 310, Lep. Ind. i.
- Pararge præusta*, *catena*, *deidamia*, figured, pls. xi & xii; LEECH, Butt. China. *P. megæra*, var. *mediolugens*; FUCHS, p. 87, JB. nass. Ver. xlv.
- Patala*, n. g. (type *Zophoessa yama*, Moore), p. 305, with *P. yamoides*, n. sp., N. India, p. 307, pl. xciv, fig. 4; MOORE, Lep. Ind. i.
- Pegada*, n. g., for *Mycalesis oculatissima*, Pouj.; MOORE, pp. 224, Lep. Ind. i.
- Placilla*, n. g. (type *Lethe christophi*, Leech); MOORE, p. 253, Lep. Ind. i.
- Pseudomaniola*, n. g., p. 222 (replaced by *Catargynnis*, p. 284), for part of *Dædalma*, Hew.; RÖBER, Exot. Schmett., Theil ii.
- Ptychandra mindorana* (Stdgr.), Philippines, SEMPER, p. 329, Reisen Philipp. ii, v, n. sp.
- Putlia*, n. n. for *Charma*, Doh. (preocc.); MOORE, p. 287, Lep. Ind. i.
- Ragadia critolaus*, Burma, NICÉVILLE, p. 322, J. Bomb. N. H. Soc. vii, pl. H, fig. 1; *R. melita*, Borneo, STAUDINGER, p. 450, Deutsche e. Z. Lep. v: n. spp.
- Rangbia*, n. g. (for *Lethe* group, 1 pt., Nicéville), p. 232, with *R. peguana*, n. sp., Burma, p. 235; MOORE, Lep. Ind. i.

- Samanta bethami*, p. 205, pl. lxviii, fig. 4, *darisoni*, p. 206, fig. 3, E. India, MOORE, Lep. Ind. i, n. spp.
- Satyrus autoonö*, *dryas*, n. varr. described and figured; LEECH, pp. 69 & 70, pls. xi & xiii, Butt. China. *S. autoonö*, var. *extrema*, figured, pl. i, fig. 1, Romanoff Mem. vi. *S. bischoffi*, varr. described; STAUDINGER, p. 237, Deutsche e. Z. Lep. iv.
- S. favonius*, Malatia, STAUDINGER, p. 239, pl. iii, fig. 1, Deutsche e. Z. Lep. iv, n. sp.
- Sinchula*, n. g. (for *Lethe* group, 3 pt., Nicéville); MOORE, p. 275, Lep. Ind. i.
- Trophonina*, n. g., for *Lymanopoda acraïda*, Butl.; RÖBER, p. 222, Exot. Schmett., Theil ii (omission from 1889 Record).
- Ypthima*: Chinese species figured, and varr. described; LEECH, pp. 81-91, pls. ix & x, Butt. China. *Y. baldus*, figured; SNELLEN, pl. xv, fig. 1, p. 236, Tijdschr. Ent. xxxiv.
- Y. argillosa*, p. 133, *nigricans*, p. 135, Java, SNELLEN, Tijdschr. Ent. xxxv; *Y. florensis*, Flores, SNELLEN, p. 235, pl. xiv, fig. 3, Tijdschr. Ent. xxxiv; *Y. celebensis*, Celebes, ROTHSCHILD, p. 433, pl. v, figs. 3 & 4, Deutsche e. Z. Lep. v; *Y. subarctous*, New Guinea, TRYON (954): n. spp.
- Zophoessa helle*, *procne*, *argentata*, *dora*, figured; LEECH, pl. vii, Butt. China.
- Z. gammiei*, p. 294, pl. xci, fig. 3, *elwesi*, p. 298, pl. xcii, fig. 3, Bhutau; MOORE, Lep. Ind. i, n. spp.

### ELYMNIIDÆ and ERYCINIDÆ.

- Drepanula*, n. g., for *Lemonias calous*, Stdgr.; RÖBER, p. 246, Exot. Schmett., Theil ii (omitted in Zool. Rec. of last year).
- Dyctis esacoides*, Perak, NICÉVILLE, p. 323, pl. h, fig. 2, J. Bomb. N. H. Soc. vii, n. sp.
- Elymnias borneensis*, Borneo, SMITH, p. 428, Ann. N. H. (6) x, n. sp.

### LYCENIDÆ.

- Lycenidæ* of the South Pacific Is., with numerous synonymical and critical remarks; DRUCE, P. Z. S. 1892, pp. 434-446, pl. xxvii.
- Acesina zephyretta*, fig. 8, *ariel*, fig. 9, figured; ELWES, pl. xlv, P. Z. S. 1892.
- Allotinus panormis*, Karen Hills, ELWES, p. 619, P. Z. S. 1892, n. sp.
- Aphnæus vulcanus*, n. var. *maximus*, p. 637, pl. xliii, fig. 5, *sani*, var. ?, p. 638, fig. 6; ELWES, P. Z. S. 1892.
- Argyrocheila*, n. g., for *A. undifera*, n. sp., W. Africa; STAUDINGER, p. 215, Deutsche e. Z. Lep. iv: figured; SMITH & KIRBY, Rhop. ex. ii, African *Lycenidæ*, pl. xviii, figs. 11 & 12.
- Arhopala ace*, p. 329, pl. h, fig. 13, *acestes*, p. 330, fig. 14, Perak, *arca*, Celebes, p. 331, fig. 15, *asia*, Malay Penins., fig. 16, *æta*, Burma, fig. 17, p. 333, NICÉVILLE, J. Bomb. N. H. Soc. vii, n. spp.

- Aslauga marginalis*, figured; SMITH & KIRBY, Rhop. ex. ii, African *Lycenidae*, pl. xix, figs. 15 & 16.
- Camena carmentalis*, Khasi Hills, NICÉVILLE, p. 335, pl. H, fig. 10, J. Bomb. N. H. Soc. vii; *C. icetoides*, p. 636, pl. xlv, fig. 3, *cleoboides*, p. 637, figs. 4 & 5, Karen Hills, ELWES, P. Z. S. 1892: n. spp.
- Catupæcilma subochrea*, Karen Hills, ELWES, p. 640, pl. xlv, fig. 10, P. Z. S. 1892.
- Chrysophanus abbottii*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 90, n. sp.
- Curetis stigmata* (Moore), RÖBER, p. 318, Tijdschr. Ent. xxxiv, n. sp.
- Cyaniris ceyx*, Java, NICÉVILLE, p. 328, pl. H, figs. 6 & 7, J. Bomb. N. H. Soc. vii, n. sp.
- Deudorix cerulea*, Druce, = (*obscurata*, Trim.), the species referred to *Rapala*; DRUCE, Ent. M. M. xxviii, p. 65.
- D. gætulia*, Khasi Hills, NICÉVILLE, p. 338, pl. H, fig. 12, J. Bomb. N. H. Soc. vii; *D. verriculata*, Celebes, SNELLEN, p. 257, pl. xv, fig. 3, Tijdschr. Ent. xxxiv; *D. mathewi*, New Hebrides, DRUCE, p. 446, P. Z. S. 1892, pl. xxvii, fig. 9: n. spp.
- Drupadia cæsarea*, Weym., = (*Sithon ravindra*, var. *niasica*, Stdgr.); WEYMER, p. 121, S. E. Z. liii.
- Durbania gerda*, figured; SMITH & KIRBY, Rhop. ex. i, African *Lycenidae*, pl. xvi, figs. 9 & 10.
- D. cornucopiae*, W. Africa, HOLLAND, p. 286, Ann. N. H. (6) x, n. sp.
- Eupsychellus*, n. g., near *Plebeius*, for *dionysius*, Boisdu; RÖBER, p. 316, Tijdschr. Ent. xxxiv, and p. 273, Exot. Schmett., Theil ii.
- Epitola doleta*, *henleyi*, *goodii*, *barombiensis*, *catuna*, figured; SMITH & KIRBY, Rhop. ex. i, African *Lycenidae*, pl. xvii.
- E. ciconia*, Sierra Leone, SMITH & KIRBY, Rhop. ex. i, African *Lycenidae*, pl. xvii, p. 58, n. sp.
- Hewitsonia kirbyi*, Dew., = (*preussi*, Stdgr.); STAUDINGER, p. 223, Deutsche e. Z. Lep. iv.
- Hypochlorosis*, n. g., for *Sithon antipha*, Hew.; RÖBER, p. 267, Exot. Schmett., Theil ii.
- Hypolycæna rava*, W. Africa, HOLLAND, p. 286, Ann. N. H. (6) x, n. sp.
- Iolaus julianus*, Staud., and *alcibiades*, Don., noticed, *I. julius*, Staud., = (*lekanion*, Druce); DRUCE, p. 185, Ent. M. M. xxviii.
- Jamides pulcherrima*, pl. xxvii, fig. 16, *carissima*, fig. 17, figured; DRUCE, P. Z. S. 1892.
- J. kava*, pl. xxvii, fig. 15, *walkeri*, figs. 13 & 14, South Pacific Is., DRUCE, p. 443, P. Z. S. 1892, n. spp.
- Kopelatus virgata*, Druce, = (*Hypolycæna gracilis*, Stdgr.); STAUDINGER, p. 223, Deutsche e. Z. Lep., and DRUCE, p. 66, Ent. M. M. xxviii.
- Lachnocnema reutlingerii*, Benita, HOLLAND, p. 286, Ann. N. H. (6) x, n. sp.
- Læosopsis roboris*, n. var. *lusitanica*; STAUDINGER, p. 232, Deutsche e. Z. Lep. iv.
- Larinopoda sylpha*, *opaca*, figured; SMITH & KIRBY, Rhop. ex., African *Lycenidae*, pl. xvi. *L. lara*, *sylphida*, *lybia*, *campinus*, figured; SMITH & KIRBY, Rhop. ex. ii, African *Lycenidae*, xviii.

- L. sylphida*, *lybia*, p. 217, *lara*, p. 218, W. Africa, STAUDINGER, Deutsche e. Z. Lep. iv, n. spp.
- Liptena mnestra*, Möschl., = (*Teriomina dispar*, Kirby); DRUCE, Ent. M. M. xxviii, p. 65. *L. rubrica*, Druce, = (*Pseuderesia zoraida*, Smith & Kirby); DRUCE, t. c.
- Lycæna rhymnus*, *tengstræmii*, *pretiosa*, referred to *Thecla*, their ♂ characters fully described and figured; BAKER, pp. 27–31, pl. ii, Tr. E. Soc. 1892. *L. arion*, var. *unicolor*; HORMUZAKI, Ent. Nachr. xviii, p. 1. *L. amanda*, n. var. *lydia*; KRULIKOWSKY, Ent. Nachr. xviii, p. 97. *L. arion*, n. var. *ruhli*; KRULIKOWSKY, Soc. Ent. vii, p. 1. *L. dolus*, *damon* and *rippertii*, note on; OBERTHUR, p. ix, Bull. Soc. Ent. Fr. lxi. *L. lucifera*, note on, with figure; STAUDINGER, p. 316, pl. iii, fig. 1, Deutsche e. Z. Lep. v. *L. comyntas*, metamorphoses; BEUTENMÜLLER, p. 76, Bull. Am. Mus. iv. *L. lygdamas*, larva noticed, EDWARDS, p. 109, Canad. Ent. xxiv. *L. icarus*, number of yearly generations in E. Russia; KRULIKOWSKY, p. 370, Ent. Nachr. xviii.
- L. dama*, Malatia, p. 234, *triphysina*, Kashgar, p. 235, pl. iii, fig. 2, STAUDINGER, Deutsche e. Z. Lep. iv; *L. stormsi*, Tanganyka, ROBBE, p. 132, Ann. Ent. Belg. xxxvi; *L. perpulchra*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 90; *L. saturata*, p. 137, *deliana*, p. 139, *datarica*, p. 140, *glauca*, p. 142, *quadriplaga*, p. 143, Java, SNELLEN, Tijdschr. Ent. xxxv : n. spp.
- Nacaduba vitiensis*, pl. xxvii, figs. 3 & 4, *florinda*, fig. 12, figured; DRUCE, P. Z. S. 1892.
- N. aberrans*, E. Pegu, ELWES, p. 626, pl. xlv, fig. 6, P. Z. S. 1892; *N. samoensis*, p. 437, pl. xxvii, figs. 5 & 6, Samoa Is., *novæhebridensis*, figs. 7 & 8, p. 438, *mallicollo*, fig. 18, p. 439, New Hebrides, *nebulosa*, Australasia, figs. 10 & 11, p. 440, DRUCE, P. Z. S. 1892 : n. spp.
- Narathura pryeri*, Borneo, BUTLER, p. 121, P. Z. S. 1892, n. sp.
- Papua*, n. g., for *P. lucifer*, RÖBER; RÖBER, p. 273, Exot. Schmett., Theil ii.
- Pentila subundularis*, figured; SMITH & KIRBY, Rhop. ex. ii, African *Lycænidae*, xviii.
- P. umbra*, W. Africa, HOLLAND, p. 285, Ann. N. H. (6) x; *P. subundularis*, W. Africa, STAUDINGER, p. 215, Deutsche e. Z. Lep. iv : n. spp.
- Philiris*, n. g., for *Plebeius ilias*, Feld., RÖBER, p. 317, Tijdschr. Ent. xxxiv, and p. 273, Exot. Schmett., Theil ii.
- Pilodeudorix barbatus*, Druce, = (*Hypolycæna nobilis*, Stdgr.); STAUDINGER, p. 223, Deutsche e. Z. Lep., and DRUCE, Ent. M. M. xxviii, p. 66.
- Pithecops bassaris*, Ké Is., NICÉVILLE, p. 327, pl. h, figs. 4 & 5, J. Bomb. N. H. Soc. vii, n. sp.
- Plebeius cyaniris*, p. 315, *P. (Theclinesthes) eremicola*, p. 316, Flores, RÖBER, Tijdschr. Ent. xxxiv (figg. in xxxv), n. spp.
- Polyommatus agestis*, var. noticed; BARRETT, Ent. M. M. xxviii, p. 245. *P. dispar*, var. *rutilus*, taken in England; BAKER, p. xxx, P. E. Soc. 1892.

- P. cupreus*, Roumania, COSMOVICI, p. 255, *Le Nat.* 1892, n. sp.  
*Pseudaletis agrippina*, Druce, ♂ = (*tricolor*, Staud.) ; DRUCE, *Ent. M. M.* xxviii, p. 65.  
*P. nigra*, W. Africa, HOLLAND, p. 286, *Ann. N. H.* (6) x, n. sp.  
*Pseuderesia tullia*, W. Africa, STAUDINGER, p. 221, *Deutsche e. Z. Lep.* iv, n. sp.  
*Rapala* (sub *Deudorix*) *diyllus*, Hew., = (*Hypolycæna debilis*, Staud.) ; DRUCE, p. 185, *Ent. M. M.* xxviii.  
*R. abnormis*, p. 642, pl. xlv, fig. 2, *hypargyria*, p. 643, fig. 7, *subguttata*, fig. 1, p. 644, Karen Hills, ELWES, *P. Z. S.* 1892, n. spp.  
*Spalgis lemolea*, Druce, = (*latimarginata*, Sharpe, and *s-signata*, Holland) ; DRUCE, *Ent. M. M.* xxviii, p. 66. *S. s-signata*, habits of larva, peculiar chrysalis resembling old man's head ; HOLLAND, *Psyche*, vi, p. 201, pl. iv.  
*Suasa suessa*, Perak, NICÉVILLE, p. 337, pl. H, figs. 8 & 9, *J. Bomb. N. H. Soc.* vii, n. sp.  
*Tajuria thya*, Khasi Hills, NICÉVILLE, p. 336, pl. H, fig. 11, *J. Bomb. N. H. Soc.* vii, n. sp.  
*Teriomima delicatula*, figs. 5 & 6, *decipiens*, figs. 7 & 8, *serena*, figs. 11 & 12, figured ; SMITH & KIRBY, *Rhop. ex. i*, African *Lycenidæ*, pl. xvi.  
*T. adelgunda*, *adelgitha*, *modesta*, *cordelia*, *alberta*, figured ; SMITH & KIRBY, *op. cit.* ii, pl. xix.  
*T. adelgunda*, p. 219, *alberta*, p. 220, W. Africa, STAUDINGER, *Deutsche e. Z. Lep.* iv, n. spp.  
*Thecla rumanie*, Roumania, COSMOVICI, p. 255, *Le Nat.* 1892 ;  
*T. leechii*, Khasi Hills, NICÉVILLE, p. 335, *J. Bomb. N. H. Soc.* vii : n. spp.  
*Theclinesthes*, n. subg. of *Plebeius*, *q.v.* ; RÖBER, p. 316, *Tijdschr. Ent.* xxxiv.  
*Thestor romanovi*, n. var. *maculifera*, STAUDINGER, p. 233, *Deutsche e. Z. Lep.* iv.  
*Tingra lunaris*, Sierra Leone, WEYMER, p. 95, *S. E. S.* liii, n. sp.  
*Zizera labradus*, pl. xxvii, fig. 1, *lulu*, = (*conjungens*, Luc.), fig. 2, figured ; DRUCE, *P. Z. S.* 1892.

### HESPERIIDÆ.

- Many of the Philippine Is. species described by Mabille are referred to other genera by SEMPER, in *Reisen Philipp.* ii, v, pp. 287-319.  
 Notes on N. American *Hesperiidæ* (genera) ; AARON, pp. 119 & 120, *Canad. Ent.* xxiv.  
*Abaratha syriethus*, var. figured ; ELWES, p. 656, pl. xliii, fig. 2, *P. Z. S.* 1892.  
*Abantis bismarcki*, W. Africa, KARSCH, p. 228, *Ent. Nachr.* xviii, n. sp.  
*Astictopterus ladana*, fig. 4, *sindu*, fig. 3, figured, pl. xliii ; ELWES, *P. Z. S.* 1892.  
*Calpodès ethius*, life-history ; COCKERELL, *Ent. News*, iii, p. 78.

- Capila jayadeva* and *Pisola zennara*, correction as to characters and sexes of ; NICÉVILLE, p. 347, J. Bomb. N. H. Soc. vii.
- Caprona adelica*, W. Africa, KARSCH, p. 242, Ent. Nachr. xviii, n. sp.
- Carterocephalus palæmon*, life-history ; FROHAWK, Ent. xxv, pp. 225-228 & 254-256.
- Carystus duris*, Mab., referred to *Lotongus* and figured ; SEMPER, p. 289, pl. xlix, fig. 7, Reisen Philipp. ii, v.
- Crossiura*, n. g., near *Capila*, p. 350, for *C. pennicillatum*, n. sp., Khasi Hills, p. 351, pl. J, figs. 1 & 2, NICÉVILLE, J. Bomb. N. H. Soc. vii.
- Cyclopides romi*, Congo ; ROBBE, p. 133, Ann. Ent. Belg. xxxvi, n. sp.
- Erionota alexandra*, Philippine Is., SEMPER, Reisen Philipp. ii, v, p. 312, n. sp.
- Eudamus coyote*, Texas, SKINNER, p. 164, Canad. Ent. xxiv, n. sp.
- Halpe fusca*, E. India, ELWES, p. 653, pl. xliii, fig. 1, P. Z. S. 1892, n. sp.
- Hesperia gemma*, Plötz., = (*Pamphila ravola*, Godm. & Salv.); WEYMER, p. 122, S. E. Z. liii. *H. lineola*, early stages described ; HAWES, Ent. xxv, pp. 177-180.
- H. mucorea*, *zintgraffi*, W. Africa, KARSCH, p. 178, Ent. Nachr. xviii, n. spp.
- Ismene fergusonii*, S. India, NICÉVILLE, p. 345, pl. J, fig. 6, J. Bomb. N. H. Soc. vii ; *I. antigone*, Flores, RÜBER, p. 320, Tijdschr. Ent. xxxiv (fig. in xxxv), n. spp.
- Lotongus parthenope*, Weymer, sexes figured, ♂ described ; NICÉVILLE, p. 354, pl. J, figs. 4 & 5, J. Bomb. N. H. Soc. vii.
- Osmodes lux*, W. Africa, HOLLAND, p. 291, Ann. N. H. (6) x, n. sp.
- Oxypalpus annulifer*, W. Africa, HOLLAND, Ann. N. H. (6) x, p. 293, n. sp.
- Padraona procles*, Ké Is., NICÉVILLE, p. 353, pl. J, figs. 7 & 8, J. Bomb. N. H. Soc. vii, n. sp.
- Pamphila dimila*, ♀ figured ; NICÉVILLE, pl. J, fig. 9, J. Bomb. N. H. Soc. vii. *P. manitoba*, variation ; LYMAN, Canad. Ent. xxiv, p. 57.
- P. errans*, N. America, SKINNER, p. 174, Ent. News, iii (metamorphoses DYAR, t. c., p. 175); *P. carolina*, N. America, SKINNER, p. 222, t. c. : n. spp.
- Pardaleodes œdipus*, Cr., n. var. *diluta* ; ROBBE, p. 134, Ann. Ent. Belg. xxxvi.
- P. xanthocephalus*, p. 289, *astrape*, *xanthioides*, p. 290, W. Africa, HOLLAND, Ann. N. H. (6) x, n. spp.
- Plastingia viburnia* (Stdgr.), *cuneiformis*, pl. xlix, fig. 11, Philippines, SEMPER, p. 314, Reisen Philipp. ii, v, n. spp.
- Procampta*, n. g., for *P. rara*, n. sp., W. Africa ; HOLLAND, p. 294, Ann. N. H. (6) x.
- Sarangesa*, Moore, = (*Erites*, *Hyda*, and *Sape*, Mab.); HOLLAND, p. 288, Ann. N. H. (6) x.
- S. motozioides*, W. Africa, HOLLAND, p. 288, Ann. N. H. (6) x, n. sp.
- Satarupa corona* (Stdgr.), Philippines, SEMPER, p. 306, Reisen Philipp. ii, v, n. sp.
- Suastus albinus*, pl. xlix, fig. 8, p. 299, *migreus*, fig. 9, p. 300, Philippines, SEMPER, Reisen Philipp. ii, v, n. spp.

- Tagiades princeps* (Stdgr.), Philippines, SEMPER, p. 307, pl. xlix, fig. 5,  
Reisen Philipp. ii, v, n. spp.  
*Tapena igna*, Philippines, SEMPER, p. 316, Reisen Philipp. ii, v, n. sp.  
*Teniorhinus watsoni*, Gaboon, HOLLAND, p. 292, Ann. N. H. (6) x, n. sp.  
*Tricosemeia*, n. g., for *T. subolivescens*, n. sp., W. Africa, HOLLAND, p. 294,  
Ann. N. H. (6) x.

## HETEROCERA.

- Catalogue of *Lepidoptera Heterocera* ; vol. i, *Sphinges, Bombyces* ; KIRBY (496).  
The classification, phylogeny, neurulation, &c., of *Heterocera* discussed ;  
HAMPSON, Moths of India, i, pp. 1-12.  
707 species of Amurland *Heterocera* of the groups *Sphinges, Bombyces, Noctuae*, catalogued and discussed seriatim ; STAUDINGER in Romanoff Mem. vi, pp. 219-658.  
Notes on many species, with named varieties, of *Heterocera* from South Siberia ; STAUDINGER, Deutsche e. Z. Lep. v, pp. 342-393.  
Brief notes on some of the early stages of numerous Australian *Heterocera*, by the late HENRY EDWARDS ; BEUTENMÜLLER, Bull. Am. Mus. iv, pp. 71-74.  
List of 12 genera established by Philippi, and of the genera of which they are synonyms ; REED, pp. 68 & 69, Act. Soc. Chili, i.  
Experiments as to colour variation in Lepidopterous larvæ, and pupæ, and in cocoons ; BATESON (40, 41), GOULD (354), POULTON (703).  
Walker's types and their labelling noticed ; GROTE, p. 189, Canad. Ent. xxiv.

## SPHINGIDÆ.

- [*Cf. AURIVILLIUS* (24), AUSTAUT (29), COSMOVICI (191), GRAESER (357), KARSCH (460, 461), LUCAS (568), MISKIN (611, 612), STAUDINGER (779), SWINHÖE (908).]  
Revision of the Australian *Sphingidæ* ; MISKIN (611, 612).  
Synonymy of the species described by Lucas in "Queenslander," see MISKIN at end of "Further note" (612).  
Brief note on phylogeny ; GROTE, p. 17, Canad. Ent. xxiv.  
*Abrisa*, n. n. for *Microlophia*, Feld. ; KIRBY, p. 641, Cat. Lep. Het. i.  
*Acanthosphinx*, n. g. for *Ambulyx gussfeldtii*, Dew., with n. var. *gigas* ; AURIVILLIUS, Ent. Tidskr. xiii, pp. 181 & 182.  
*Acherontia atropos*, stridulation of ; ROTH, p. 250, Ent. Tidskr. xiii.  
*Acosmeryx mixtura*, figured, pl. i, fig. 7 ; SWINHÖE, Cat. Lep. Oxford.  
*Ambulyx wildei*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ? n. sp.  
*Anceryx fasciata*, larva described ; COCKERELL, Ent. xxiv, p. 19.  
*Cherocampa rosetta*, p. 16, *insularis*, p. 18, Ceram, *amara*, Mysol, p. 21, pl. i, fig. 9, SWINHÖE, Cat. Lep. Oxford ; *C. cleopatra, cloacina, tryoni, pallida*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, pp. (15-18, sep. copy) : n. spp.

- Deilephila japonica*, var. ? *suifuna*, figured, pl. iv, fig. 2, described, p. 228 ; STAUDINGER, Romanoff Mem. vi.
- D. proxima*, Japan, AUSTAUT, p. 69, Le Nat. 1892 ; *D. euphorbioides*, Japan, SWINHOE, p. 22, Cat. Lep. Oxford : n. spp.
- Dolbina exacta*, Amurland, STAUDINGER, p. 222, pl. iv, fig. 1, Romanoff Mem. vi, n. sp.
- Gargantua*, n. n. for *Lintneria*, Butl. ; KIRBY, p. 692, Cat. Lep. Het. i.
- Hemaris rubra*, N. India, HAMPSON, Moths of India, i, p. 120 ; *H. janus*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ? : n. spp.
- Kentochrysalis* (sub *Sphinx*) *streckeri*, Stgr., = (*dauidis*, Oberth.) ; STAUDINGER, p. 220, Romanoff Mem. vi.
- Lophura hyas*, figured, pl. i, fig. 2, Romanoff Mem. vi.
- Macrosila severina*, Cape York, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ? n. sp.
- Macroglossa nigra*, Roumania, COSMOVICI, p. 280, Le Nat. 1892 ; *M. semifasciata*, Pegu, HAMPSON, Moths of India, i, p. 115 ; *M. limata*, Java, pl. i, fig. 1, p. 4, *kanita*, fig. 2, Sumatra, *labrosa*, Bouru, p. 5, *inuitata*, Dorey, p. 6, SWINHOE, Cat. Lep. Oxford : n. spp.
- Nephele pachyderma*, W. Africa, KARSCH, p. 180, Ent. Nachr. xviii, n. sp.
- Ocyton radiata*, W. Africa, KARSCH, p. 116, Ent. Nachr. xviii, n. sp.
- Pachylia ficus*, notes on larva ; COCKERELL, Ent. News, iii, p. 4.
- Panacra variolosa*, figured, pl. i, fig. 4 ; SWINHOE, Cat. Lep. Oxford.
- P. turneri*, Lucas, redescribed ; MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ?
- P. frena*, Silhet, pl. i, fig. 5, p. 48, *mira*, Cape York, p. 13, pl. i, fig. 6, SWINHOE, Cat. Lep. Oxford, n. spp.
- Protoparce cæstri*, Blanch., = (*Sphinx eurylochus*, Phil.) ; REED, p. 68, Act. Soc. Chili, i.
- P. minimus*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ?, n. sp.
- Pseudosphinx grisea*, p. 104, *concolor*, p. 106, India, HAMPSON, Moths of India, i, n. spp.
- Pterogon kuldjaensis*, Centr. Asia, GRAESER, p. 299, Berl. Ent. Zeit. xxxvii, n. sp.
- Smerinthus populi*, anatomy of hermaphrodite ; TETENS (918). *S. tiliae* and *populi*, note on markings of larvæ ; GOULD, pp. 236-243, Tr. Ent. Soc. 1892.
- S. heynei*, Japan, AUSTAUT, p. 68, Le Nat. 1892, n. sp.
- Sphinx eremophila*, redescribed ; LUCAS, p. 277, P. Linn. Soc. N.S.W. (2) vi.
- S. marmorata*, Queensland, LUCAS, P. Linn. Soc. N.S.W. (2) vi, p. 278, n. sp.

## ÆGERIIDÆ.

[Cf. DRUCE (226), HAMPSON (384), KEL LICOTT (476, 477), MISKIN (613), STAUDINGER (886), SWINHOE (908).]

- Adicoa*, n. g. for *A. auricollum*, n. sp., Tenasserim ; HAMPSON, p. 198, Moths of India, i.
- Egeria corni*, habits and characters, KELLICOTT, p. 210, Canad. Ent. xxiv, and metamorphoses, *Ins. Life*, v, p. 83 ; *Æ. gallivora*, notes on ; KELLICOTT, Canad. Ent. xxiv, p. 44.
- Æ. pensilis*, Sarawak, SWINHOE, p. 36, Cat. Lep. Oxford ; *Æ. rubristigma*, KELLICOTT, p. 211, Canad. Ent. xxiv, and *Ins. Life*, v, p. 84 ; *Æ. armasata, mardia*, Mexico, DRUCE, Ann. N. H. (6) ix, p. 275 : n. spp.
- Albuna modesta*, Ohio, KELLICOTT, p. 46, Canad. Ent. xxiv, n. sp.
- Anthrenoptera*, n. g., p. 35, for *Sphecia contracta*, Wlk., figured, pl. ii, fig. 11 ; SWINHOE, Cat. Lep. Oxford.
- Aschistophleps*, n. g. for *A. lampropoda*, p. 200, *melissoides*, p. 201, n. spp., India ; HAMPSON, Moths of India, i.
- Ceratocorema*, n. g. for *C. posteristatum*, n. sp., India ; HAMPSON, Moths of India, i, p. 200.
- Ichneumenoptera*, n. g. for *I. auripes*, p. 194, *flavicincta, xanthosoma, flavipalpus, ignifera*, p. 195, n. spp., E. India ; HAMPSON, Moths of India, i.
- Macrotrarsipus*, n. g. for *M. albipunctus*, n. sp., Burma ; HAMPSON, p. 194, Moths of India, i.
- Melittia ceto*, notes on ; SMITH, p. 129, Canad. Ent. xxiv.
- M. grandis*, Sikkim, HAMPSON, Moths of India, i, p. 203 ; *M. humerosa*, N. China, SWINHOE, p. 38, Cat. Lep. Oxford ; *M. chalybescens*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ? ; *M. beckeri*, Mexico, DRUCE, p. 276, Ann. N. H. (6) ix : n. spp.
- Sciapteron fervidum*, varr. described ; STAUDINGER, p. 241, Deutsche e. Z. Lep. iv.
- S. splendidum*, Taurus, p. 242, *S. ? dispar*, p. 243, Biskra, STAUDINGER, Deutsche e. Z. Lep. iv ; *S. flammans*, p. 191, *cæruleimicans*, p. 192, *metallicum, cupreivitta, tenuimarginatum*, p. 193, E. India, HAMPSON, Moths of India, i : n. spp.
- Sesia proximata*, Amasia, p. 244, *regula*, Mardin, p. 246, STAUDINGER, Deutsche e. Z. Lep. iv ; *S. quinquecincta, uncinata*, p. 196, *xanthosticta*, p. 197, E. India, HAMPSON, Moths of India, i : n. spp.
- Sphecodoptera*, n. g., p. 189, type *repanda*, Wlk., and with *S. flavicollis*, n. sp., Kashmir, p. 190 ; HAMPSON, Moths of India, i.
- Trichocerota*, n. g. for *T. ruficincta*, Pegu ; HAMPSON, p. 199, Moths of India, i.
- Trilochana ignicauda*, Burma, HAMPSON, Moths of India, i, p. 191, n. sp.
- Trochilium apiforme*, n. var. *caflischii* ; STANDFUSS, p. 369, MT. Schw. Ent. Ges. viii.
- T. ommatiforme, ignicolle*, India, HAMPSON, Moths of India, i, p. 189 ; *T. cupreifascia*, Queensland, MISKIN, P. R. Soc. Queensl. viii, pt. 3, p. ? : n. spp.

## CASTNIIDÆ.

[Cf. LOWER (566), SWINHOE (908).]

*Synemon collecta*, p. 151, pl. vii, fig. 16, *adelaida*, fig. 10, p. 154, Australia, SWINHOE, Cat. Lep. Oxford; *S. pyrrhoptera*, Australia, LOWER, p. 13, Tr. R. Soc. S. Austr. xvi : n. spp.

## BOMBYCES.\*

[Cf. ALPHERAKY (779), AURIVILLIUS (24), BUTLER (141, 146), CARPENTIER (160), CHRISTOPH (175), DISTANT (210, 216), DOGNIN (220), DRUCE (226), DYAR (238, 239, 240), FENK (279), GRAESER (356, 357), HEYLAERTS (403), HOLLAND (408, 409), HONRATH (413), KARSCH (460, 464), KIRBY (497), LOWER (565, 566), LUCAS (568, 569), MABILLE (571, 572), MABILLE & VUILLOT (573), MOORE (623), NEUMOEGEN (633, 634), OBERTHUR (650), PACKARD (665, 666), POUJADE (702), PÜNGELER (706), RÖBER (767), SCHAUS (798, 799), SLOSSON (854, 855), SONTTHONNAX (878), STANDFUSS (779), STAUDINGER (779, 886, 890, 891), SWINHOE (908), VUILLOT (978, 980), WEYMER (1003).]

The following new or revived names of families are recognized in the first volume of Hampson's Moths of India, viz., *Brahmeidæ*, *Eupterotidæ*, *Syntomidæ*, *Arbelidæ*, *Pterothysanidæ*.

KIRBY, in his catalogue, makes use of the names *Cyllopodidæ*, *Cymbidæ*, and *Pinaridæ*, to represent families of *Bombyces*.

*Achelura*, n. n. for *Chelura*, Hope; KIRBY, p. 56, Cat. Lep. Het. i.

*Aclytia petra*, Peru, p. 276, *hecale*, p. 277, Brazil, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i), n. spp.

*Adelocephala invalida*, Brazil, SCHAUS, p. 289, P. Z. S. 1891 (figured, SCHAUS, pl. iii, American Lep.); *A. columbia*, Columbia, SCHAUS, p. 21, pl. iii, fig. 13, American Lep. : n. spp.

*Adlullia lunifera*, pl. vi, fig. 3, *innotata*, fig. 1, *xanthomela*, fig. 8, *divisa*, fig. 14, figured; SWINHOE, Cat. Lep. Oxford.

*A. bollora*, Borneo, SWINHOE, p. 186, pl. vi, fig. 2, Cat. Lep. Oxford, n. sp.

*Ægocera* and *Hecatesia*, stridulation in; HAMPSON, pp. 188 & 189, P. Z. S. 1892. *Æ. triphænoides*, synonymical note; WEYMER, p. 124, S. E. Z. liii.

*Æ. confluens*, Zanzibar, WEYMER, p. 100, S. E. Z. liii, n. sp.

*Æmilia*, n. n. for *Ameles*, Walk.; KIRBY, p. 218, Cat. Lep. Het. i.

*Agarea minuta*, Brazil, SCHAUS, p. 288, P. Z. S. 1892, n. sp.

*Agaristidæ*, definition of; AURIVILLIUS, Ent. Tidskr. xiii, p. 183.

---

\* Owing to increasing divergence of opinion as to the limits and positions of the families hitherto placed between the Sphingid and the Noctuid Moths, and to the large number of new genera that have been established of late years, we are compelled to unite the groups under the comprehensive term *Bombyces*.

- Agarista albamedia, simplex*, p. 301, *tropica*, p. 302, *cœruleotincta*, p. 303, Queensland, LUCAS, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Aglia tau*, life-history ; ANDERSSON, Ent. Tidskr. xiii, pp. 93-96.
- Agnidra carnea*, Borneo, BUTLER, p. 125, pl. vi, fig. 3, P. Z. S. 1892, n. sp.
- Agonis lutensis*, Ternate, SWINHOE, p. 136, Cat. Lep. Oxford, n. sp.
- Albara reversaria*, figured, pl. vii, fig. 9 ; SWINHOE, Cat. Lep. Oxford.
- Allodonta ? leucodera*, Amurland, STAUDINGER, p. 357, Romanoff Mem. vi, n. sp.
- Aloa gangara*, pl. iv, fig. 2, *corsima*, fig. 1, SWINHOE, p. 171, Cat. Lep. Oxford, n. spp.
- Alophogaster*, n. g., *Phaudinae*, for *A. rubribasis*, Nága Hills, n. sp., HAMPSON, p. 287, Moths of India, i.
- Alpenus trifasciata*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 92, n. sp.
- Alypia crescens*, Wlk., = (*grotei*, Bdv.) ; SMITH, p. 133, Canad. Ent. xxiv.
- Amaxia hebe*, p. 278, *pyga*, p. 279, Brazil, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i) : n. spp.
- Ameles byblis*, Brazil, SCHAUS, p. 279, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 2), n. sp.
- Amerila nivaria*, p. 105, *phædra*, p. 106, E. Africa, WEYMER, S. E. Z. liii, n. spp.
- Ammalo thrailkilli*, Mexico, SCHAUS, p. 280, P. Z. S. 1892, n. sp.
- Amydona sericea*, Peru, SCHAUS, p. 324, P. Z. S. 1892, n. sp.
- Anaphe* : characters and position noticed ; BUTLER, p. 398, Ann. N. H. (6) x. *A. carteri*, Walsingh., = (*parva*, Aur.) ; AURIVILLIUS, p. 195, Ent. Tidskr. xiii.
- A. aurea*, Madagascar, BUTLER, p. 398, Ann. N. H. (6) x, n. sp.
- Anaxidia*, n. g., *Limacodidae*, for *A. lactea*, n. sp., W. Australia ; SWINHOE, p. 231, Cat. Lep. Oxford.
- Anisota stigma*, metamorphoses ; MARLATT, pp. 111 & 112, Tr. Kansas Ac. xi, figs. *A. stigma*, p. 65, *senatoria*, p. 66, metamorphoses ; BEUTENMÜLLER, Bull. Am. Mus. iv.
- Antarctia rubra*, var., = (*walsinghami*, Butl.) ; SMITH, p. 135, Canad. Ent. xxiv.
- Antherœa anthina*, Cameroons, KARSCH, p. 353, Ent. Nachr. xviii ; *A. knyvetti*, Sikkim, HAMPSON, Moths of India, i, p. 19 ; *A. pulchra, fasciata*, p. 448, *olivescens, ochripicta*, p. 449, Bombay, *versicolor*, Bengal, *hartii*, N. China, p. 450, *borneensis*, p. 451, *ridlyi*, p. 452, Borneo, *surakarta*, Java, p. 453, MOORE, Ann. N. H. (6) ix ; *A. alephostra*, Waigiou, SWINHOE, p. 252, Cat. Lep. Oxford ; *A. loranthi*, Queensland, LUCAS, p. 292, P. Linn. Soc. N.S.W. (2) vi : n. spp.
- Antipha biplagata*, Java, HEYLAERTS, p. 10, Ann. Ent. Belg. xxxvi, n. sp.
- Aon*, n. g., *Cossidae*, for *A. noctuiformis*, n. sp., Texas ; NEUMOEGER, Ent. News, iii, p. 258.
- Aræocera*, n. g., *Zygenidae*, for *A. cyanescens, posthyalina*, n. spp., India ; HAMPSON, Moths of India, i, p. 244.
- Aræogyia*, n. g., *Limacodidae*, p. 394, for *A. spatulata, castanea*, n. spp., India, p. 395 ; HAMPSON, Moths of India, i.

- Archylus mexicana*, Jalapa, p. 288, *vesta*, Brazil, p. 289, SCHAUS, P. Z. S. 1892, n. spp.
- Arctia fortunata* and *glauca*, notes on, with figg. ; STAUDINGER, pp. 250 & 251, pl. iii, figs. 3 & 5, Deutsche e. Z. Lep. iv. *A. mongolica*, figured, pl. i, fig. 6, Romanoff Mem. vi. *A. nais* ; *rhoda* and *ochreata*, Butl., and *radians*, Wlk., are probably varr. of this : *A. phyllira*, = (*dodgei*, Butl.) ; SMITH, pp. 134 & 135, Canad. Ent. xxiv. *A. caja*, var. ; LADDIMAN, Ent. xxv, p. 1.
- A. flava*, n. var. *campestris* ; GRAESER, p. 213, Berl. Ent. Zeit. xxxvii.
- A. turbans*, Irkutsk, CHRISTOPH, p. 460, Hor. Ent. Ross. xxvi ; *A. minea*, N. America, SLOSSON, p. 257, Ent. News, iii : n. spp.
- Ardices garida*, Australia, SWINHOE, p. 179, Cat. Lep. Oxford, n. sp.
- Ardonea metallica*, Peru, SCHAUS, p. 284, P. Z. S. 1892 (figured, pl. ii, fig. 8 ; SCHAUS, American Lep.), n. sp.
- Areas sparsalis*, *conflictalis*, *rudis*, Wlk., figured ; SWINHOE, pl. iv, figg. 4-6, Cat. Lep. Oxford.
- Argina pulchra*, Philippines, SWINHOE, p. 117, pl. iii, fig. 5, Cat. Lep. Oxford, n. sp.
- Arguda rectilinea*, Burma, HAMPSON, p. 414, Moths of India, i, n. sp.
- Argyrooides magon*, Brazil, SCHAUS, p. 276, P. Z. S. 1892, n. sp.
- Aroa atrella*, p. 439, *aurantifascia*, p. 440, India, HAMPSON, Moths of India, i ; *A. exoleta*, Queensland, SWINHOE, p. 197, pl. vi, fig. 18, Cat. Lep. Oxford, n. spp.
- Arotros*, n. g., *Bombycidæ*, p. 325, for *A. striata*, n. sp., Brazil, p. 326 ; SCHAUS, P. Z. S. 1892.
- Artace anula*, *meridionalis*, Brazil, SCHAUS, p. 319, P. Z. S. 1892, n. spp.
- Artaxa chrysophea*, n. var. *iobrota* ; LUCAS, p. 251, P. Linn. Soc. N.S.W. (2) vii. *A. signiplaga*, figured ; SWINHOE, pl. vi, fig. 9, Cat. Lep. Oxford. *A. charmetanti*, figured ; MABILLE & VUILLOT, pl. xi, fig. 2, Nov. Lep.
- Artaxa albinotata*, p. 9, *bicolor*, p. 10, Sumatra, HEYLAERTS, Ann. Ent. Belg. xxxvi ; *A. singapura*, Singapore, p. 189, pl. vi, fig. 19, *enunciativa*, Philippines, p. 190, SWINHOE, Cat. Lep. Oxford ; *A. lucifuga*, Brisbane, LUCAS, p. 250, P. Linn. Soc. N.S.W. (2) vii : n. spp.
- Artona sieversi*, Mongolia, ALPHERAKY, p. 5, pl. i, fig. 4, Romanoff Mem. vi, n. sp.
- Asterocopus nodosus*, Tasmania, SWINHOE, p. 299, pl. viii, fig. 13, Cat. Lep. Oxford, n. sp.
- Asura* ? *bisecta*, Queensland, LUCAS, P. Linn. Soc. N.S.W. (2) vi, p. 279, n. sp.
- Atasca*, n. g. for pt. of *Nyctemera*, p. 139, *A. simplex* and *quadriplaga*, Wlk., figured, pl. v, figs. 13 & 9 ; SWINHOE, Cat. Lep. Oxford.
- Atossa palæarctica*, Stdgr., systematic position ; SNELLEN, p. 11, Tijdschr. Ent. xxxv.
- Attacus atlas* and allies, synonymy ; KIRBY, Ent. xxv, pp. 186-188.

- Automeris macareis, rubicunda*, Brazil, *nopalzin*, Mexico, p. 290, *tamphilus*, Brazil, p. 291, SCHAUS, P. Z. S. 1892 (*A. macareis, rubicunda*, figured, pl. iii, SCHAUS, American Lep.); *A. quadridentata*, Brazil, KIRBY, p. 175, pl. xi, fig. 3, Ann. N. H. (6) x : n. spp.
- Automolidae*, = (*Hexaneuridae*, Wallengr.), composition of ; AURIVILLIUS, p. 189, Ent. Tidskr. xiii.
- Automolis elissa*, Brazil, SCHAUS, p. 277, P. Z. S. 1892 (figured and referred to *Euplesia*, SCHAUS, p. 7, pl. i, fig. 21, American Lep.), n. sp.
- Azygophleps*, n. g., *Cossidae*, type *scalaris*, Fab. ; HAMPSON, p. 309, Moths of India, i.
- Balacra elegans*, p. 190, *pulchra*, B. ? *croceipes*, p. 200, Cameroons, AURIVILLIUS, Ent. Tidskr. xiii, n. spp.
- Barsine hypoprepoides*, fig. 22, *placens*, fig. 15, figured, pl. iii, SWINHOE, Cat. Lep. Oxford.
- B. lucibilis*, Borneo, pl. iii, fig. 6, p. 107, *intrita*, Ceram, fig. 23, p. 108, SWINHOE, Cat. Lep. Oxford, n. spp.
- Bharetta flammans*, Manipur, HAMPSON, p. 416, Moths of India, i, n. sp.
- Bijugis* sp., larva and female noticed ; PÜNGELER, p. 139, Deutsche e. Z. Lep. v.
- Birthama obliqua*, Wlk., figured, pl. viii, fig. 9 ; SWINHOE, Cat. Lep. Oxford.
- B. bilineata*, Philippines, SWINHOE, p. 240, Cat. Lep. Oxford, n. sp.
- Bizone dubenskii*, China, ALPHÉRAKY, p. 11, pl. i, fig. 5, Romanoff Mem. vi, n. sp.
- Blera causia*, p. 332, *bianca, apella, sida*, Brazil, p. 333, SCHAUS, P. Z. S. 1892, n. spp.
- Bombyx trifolii*, n. var. *bathseba* ; STAUDINGER, p. 260, Deutsche e. Z. Lep. iv. *B. quercus* and *calluna*, effects of temperature in producing variation ; MERRIFIELD, p. 38, Tr. E. Soc. 1892. *B. mori*, existence of clinging papillæ in abdominal legs of larva ; VERNON, Zool. Anz. xv, p. 279 : embryology ; HENKING (396) : food-plants ; HUTH (442).
- B. salomonis*, Beyrout, STAUDINGER, p. 259, Deutsche e. Z. Lep. iv ; *B. rueckbeili*, Central Asia, GRAESER, p. 301, Berl. Ent. Zeit. xxxvii ; *B. (Lebeda) rotundata*, Java, HEYLAERTS, Ann. Ent. Belg. xxxvi, p. 8 : n. spp.
- Borocera madagascariensis*, notes on ; SIKORA, p. 179, Soc. Ent. vi.
- B. esteban*, Loja, DOGNIN, p. 33, Le Nat. 1892, n. sp.
- Brachartona catoxantha*, Tenasserim, HAMPSON, p. 233, Moths of India, i, n. sp.
- Bremeria*, n. g., near *Rhaphidognatha*, for *B. manza*, n. sp., China, pl. i, fig. 3 ; ALPHÉRAKY, p. 7, Romanoff Mem. vi.
- Brycea peruviana*, Peru, SCHAUS, p. 284, P. Z. S. 1892 (figured, pl. ii, fig. 16, SCHAUS, American Lep.), n. sp.
- Bunceia mitfordi*, Sierra Leone, KIRBY, p. 173, pl. xi, fig. 1, Ann. N. H. (6) x, n. sp.

- Caligula castanea*, Japan, SWINHOE, p. 249, Cat. Lep. Oxford, n. sp.
- Callartona*, n. g., *Zyganidæ*, type *purpurascens*, Hmpn.; HAMPSON, p. 233, Moths of India, i.
- Calligenia pilcheri*, Rockhampton, LUCAS, P. Linn. Soc. N.S.W. (2) vi, p. 279, n. sp.
- Callimorpha suffusa*, metamorphoses; MARLATT, p. 113, figg., Tr. Kansas Ac. xi. *C. lecontei*, localisation of variation; MASON, Ent. News, iii, p. 52.
- Callitomis multifasciata*, India, HAMPSON, Moths of India, i, p. 225, n. sp.
- Callizygæna auricincta*, Nilgiri Hills, SWINHOE, p. 62, Cat. Lep. Oxford, n. sp.
- Calybia*, n. n. for *Phryne*, Grote; KIRBY, p. 446, Cat. Lep. Het. i.
- Camptochilus*, n. g., *Drepanulidæ*, type *reticulatum*, Moore; HAMPSON, p. 351, Moths of India, i.
- Caprima gelida*, fig. 3, *C. mutilata*, Wlk. (sub *Soritia*), fig. 15, figured, pl. ii; SWINHOE, Cat. Lep. Oxford.
- Carales celer*, Brazil, SCHAUS, p. 282, P. Z. S. 1892, n. sp.
- Cascera inconcisa*, Mysol, SWINHOE, p. 299, pl. vii, fig. 6, Cat. Lep. Oxford, n. sp.
- Ceratonema*, n. g., *Limacodidæ*, p. 393, type *retractatum*, Wlk., with *C. albifusum*, *fasciatum*, n. spp., India, p. 394; HAMPSON, Moths of India, i.
- Cerura*: list of the N. American species; DYAR, Psyche, vi, p. 290: mode of emergence from cocoon; CHAPMAN, Ent. xxv, pp. 302-304.
- C. meridionalis*, Texas, DYAR, Psyche, vi, p. 291, n. sp.
- Chalcoecelis*, n. g., *Limacodidæ*, type *fumifera*, Swinh.; HAMPSON, p. 392, Moths of India, i.
- Chalcosia fragilis*, Wlk., figured, pl. ii, fig. 7; SWINHOE, Cat. Lep. Oxford.
- C. griseifusa*, Pegu, HAMPSON, p. 264, Moths of India, i; *C. paviei*, Laos, POUJADE, p. 268, pl. xi, fig. 5, N. Arch. Mus. Paris (3) iii; *C. indistincta*, Borneo, SWINHOE, p. 74, Cat. Lep. Oxford: n. spp.
- Chaliinæ*, n. subfam. of *Psychidæ*; HAMPSON, Moths of India, i, p. 300.
- Chalioides*, n. g., p. 227, for *C. vitrea*, n. sp., Ceylon, p. 228; SWINHOE, Cat. Lep. Oxford.
- Charagia pomalis*, Queensland, pl. viii, fig. 3, *dulcis*, Swan River, SWINHOE, p. 288, Cat. Lep. Oxford, n. spp.
- Charidea inachia*, Brazil, SCHAUS, p. 277, P. Z. S. 1892 (figured and referred to *Cyanopepla*, SCHAUS, American Lep. i, p. 6, pl. i, fig. 19), n. sp.
- Chelonia mirifica*, Ta-Tsien-Lou, OBERTHUR, p. 8, pl. i, fig. 7, Études d'Ent. xvi, n. sp.
- Chenuala*, n. g., *Liparidæ*, for *C. rufa*, n. sp., Queensland; SWINHOE, p. 212, Cat. Lep. Oxford.
- Chondrostega pastrana*, n. var. *palaestrana*; STAUDINGER, p. 257, Deutsche e. Z. Lep. iv.
- C. fasciana*, Jerusalem, STAUDINGER, Deutsche e. Z. Lep. iv, p. 258, n. sp.

- Chrysartona*, n. g., *Zygænidae*, for *Procris stipata*, Wlk. ; SWINHÖE, p. 57, Cat. Lep. Oxford.
- C. refulgens*, Burma, HAMPSON, p. 232, Moths of India, i, n. sp.
- Chrysopsyche mirifica*, cocoon figured ; HOLLAND, pl. v, fig. 6, noticed, p. 216, Psyche, vi.
- Cispia flavipes*, Sikkim, HAMPSON, p. 493, Moths of India, i, n. sp.
- Cisthene petrovna*, Brazil, SCHAUS, p. 283, P. Z. S. 1892 (figured, pl. ii, fig. 4, SCHAUS, American Lep.), n. sp.
- Citheronia vogleri*, = (*Eacles leona*, Druce), figured, pl. iii, fig. 2 ; SCHAUS, American Lep.
- Clelea plumbeola*, Burma, HAMPSON, p. 240, Moths of India, i, n. sp.
- Clisiocampa constricta*, var. = (*strigosa*, Stretch) ; DYAR, p. 326, Psyche, vi. *C. erosa*, metamorphoses ; DYAR, t. c. p. 364.
- Cochliothea* : habits, systematic position ; PÜNGELER, Deutsche e. Z. Lep. v, p. 133.
- Codiosoma*, n. n. for *Kodiosoma*, Stretch ; KIRBY, p. 244, Cat. Lep. Het. i.
- Cælodasys tonac*, p. 330, *pegasis*, p. 331, Brazil, SCHAUS, P. Z. S. 1892, n. spp.
- Collita leucanioides*, Wlk. (sub *Lithosia*), figured, pl. iii, fig. 17 ; SWINHÖE, Cat. Lep. Oxford.
- Comacla simplex*, Wlk., = (*murina*, Wlk., and *Vanessodes clarus*, G. & R.) ; SMITH, p. 134, Canad. Ent. xxiv.
- Contheyla melanosticta*, India, HAMPSON, p. 385, Moths of India, i, n. sp.
- Corcura torta*, fig. 10, *discalis*, fig. 12, figured ; SWINHÖE, pl. iii, Cat. Lep. Oxford.
- C. mysolica*, Mysol, SWINHÖE, p. 119, pl. iii, fig. 18, Cat. Lep. Oxford, n. sp.
- Corma maculata*, Burma, HAMPSON, p. 268, Moths of India, i, n. sp.
- Cosmosoma harpalyce*, Petropolis, SCHAUS, p. 275, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i, fig. 11), n. sp.
- Cossa vagivitta*, Wlk. (sub *Lithosia*), figured, pl. iii, fig. 14 ; SWINHÖE, Cat. Lep. Oxford.
- Cossidæ* and *Hepialidæ*, wing-neuration discussed ; HENKING, Z. wiss. Zool. liii, pp. 635-639.
- Cossula notodontoides*, *præclara*, Brazil, SCHAUS, p. 328, P. Z. S. 1892, n. spp.
- Cossulinus*, n. n. for *Cossulus*, Stdgr. ; KIRBY, p. 860, Cat. Lep. Het. i.
- Cossus ussuriensis*, E. Siberia, GRAESER, p. 213, Berl. Ent. Zeit. xxxvii ; *C. nigromaculatus*, p. 305, *parvipunctus*, *pallidæ*, p. 306, India, HAMPSON, Moths of India, i ; *C. chloratus*, Borneo, SWINHÖE, p. 284, pl. viii, fig. 8, Cat. Lep. Oxford ; *C. parilis*, *horrifer*, Brazil, SCHAUS, p. 327, P. Z. S. 1892 : n. spp.
- Costria abnoba*, Brazil ; SCHAUS, p. 327, P. Z. S. 1892, n. sp.
- Cosuma marginata*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 93, n. sp.
- Cothocida nigrifera*, Wlk., referred to *Crocota* ; SMITH, p. 134, Canad. Ent. xxiv.
- Crambidia pallida*, egg and young larva ; DYAR, Ent. News, iii, p. 245.

- Crambomorpha auraria*, Loja, DOGNIN, p. 169, Le Nat. 1892, n. sp.
- Crinocraspeda*, n. g., *Lasiocampidæ*, type '*torrida*', Moore; HAMPSON, p. 420, Moths of India, i.
- Crocomela*, n. n. for *Darna*, Wlk.; KIRBY, p. 405, Cat. Lep. Het. i.
- Crothæma decorata*, Transvaal, DISTANT, p. 237, pl. ii, fig. 6, Naturalist Transvaal, n. sp.
- Ctenucha azteca*, Mexico, SCHAUS, p. 278, P. Z. S. 1892, n. sp.
- Cyclosia ficta*, Wlk., referred to *Milleria*, p. 70, and figured, pl. ii, fig. 4; SWINHOE, Cat. Lep. Oxford.
- C. chuna*, Menado, p. 68, *enodis*, Sumatra, pl. ii, fig. 2, *chartacea*, Manilla, fig. 3, p. 69, SWINHOE, Cat. Lep. Oxford, n. spp.
- Cylopodidæ*, n. n. for a part of the family *Chrysaugidæ*; KIRBY, Cat. Lep. Het. i, p. 398.
- Cylopora* (*Flavinia*) *dubia*, *darna*, *janeira*, *quicha*, *chibcha*, Schaus, figured; SCHAUS, American Lep. pl. ii.
- Cyphanta chortochlora*, Himalaya, HAMPSON, Moths of India, p. 175, n. sp.
- Dactylorhyncha*, n. g., *Liparidæ*, type *pallida*, Hampson.; HAMPSON, p. 470, Moths of India, i.
- Dalcera tijucana*, Brazil, SCHAUS, p. 322, P. Z. S. 1892, n. sp.
- Dalaca prytanes*, p. 329, *mummea*, *oreas*, Brazil, *terea*, Mexico, p. 330, SCHAUS, P. Z. S. 1892, n. spp.
- Damata microsticta*, E. India, SWINHOE, p. 302, Cat. Lep. Oxford; *D. nigrosticta*, E. India, HAMPSON, Moths of India, i, p. 157, n. spp.
- Damias angustifasciata*, Ké Is., RÖBER, p. 324, Tijdschr. Ent. xxxiv (fig. in xxxv), n. sp.
- Danima banksiæ*, larva noticed; ASH, Ent. M. M. xxviii, p. 232, woodcut.
- Darala complens*, p. 209, *uniformis*, *minuta*, p. 210, Australia; SWINHOE, Cat. Lep. Oxford; *D. ochroptera*, Centr. Australia, LOWER, p. 14, Tr. R. Soc. S. Austr. xvi; *D. expansa*, *magnifica*, p. 286, *asciscens*, p. 287, *linearis*, p. 289, *succinea*, *scortea*, p. 290, *rubriscripta*, *rosea*, p. 291, Australia, LUCAS, P. Linn. Soc. N.S.W. (2) vi : n. spp.
- Darna metaleuca*, Wlk. (sub *Artaxa*), pl. vii, fig. 14, *basalis*, Wlk. (sub *Susica*), pl. viii, fig. 11, figured; SWINHOE, Cat. Lep. Oxford.
- D. inca*, Peru, SCHAUS, p. 286, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 10), n. sp.
- Dasychira chloroptera*, India, HAMPSON, p. 450, Moths of India, i; *D. tristis*, Sumatra, p. 12, *D. (Mardara) preangerensis*, Java, p. 13, HEYLAERTS, Ann. Ent. Belg. xxxvi : n. spp.
- Dasylophia puntagorda*, Florida, SLOSSON, p. 139, Canad. Ent. xxiv, n. sp.
- Datana major*, metamorphoses; BEUTENMULLER, p. 76, Bull. Am. Mus. iv.
- Demas coryli*, habits noticed; STILL, Ent. M. M. xxviii, p. 148.
- Dendrophleps*, n. g., *Liparidæ*, for *D. semihyalina*, n. sp., Khasi Hills; HAMPSON, p. 491, Moths of India, i.
- Diabasis nilgirensis*, n. n. for *Bijugis sikkimensis*, Heyl.; HAMPSON, p. 303, Moths of India, i.

- Dicranura vinula*, escape from cocoon by means of potassium hydroxide :  
LATTER, Tr. E. Soc. 1892, p. 287.
- Digama burmana*, Myingan, HAMPSON, p. 505, Moths of India, i, n. sp.
- Dirphia aculea*, Brazil, VUILLOT, p. cxi, Bull. Soc. Ent. Fr. lxi, n. sp.
- Dixoa*, n. g., *Thyrididæ*, type *albatalis*, Swinh. ; HAMPSON, p. 355, Moths of India, i.
- Dolecta juturna*, *macrochir*, *invenusta*, Brazil, SCHAUS, p. 328, P. Z. S. 1892, n. spp.
- Dolgoma nebulosa*, Wlk. (sub *Lithosia*), figured, pl. iv, fig. 18 ; SWINHOE, Cat. Lep. Oxford.
- Dreata pomona*, E. Africa, WEYMER, p. 113, S. E. Z. liii, n. sp.
- Drepana curvaria*, Wlk. (sub *Canucha*), pl. vii, fig. 1, *micacea*, Wlk., fig. 17, figured ; SWINHOE, Cat. Lep. Oxford.
- D. grisearia*, pl. iv, fig. 7, *muscula*, pl. xii, fig. 7, Amurland, STAUDINGER, p. 335, Romanoff Mem. vi ; *D. rufofasciata*, p. 334, *ochreipennis*, *innotata*, *fasciata*, p. 335, *perhamata*, p. 336, *orphanina*, p. 337, *excisa*, p. 338, *pulcherrima*, p. 339, *xanthoptera*, p. 341, *fulva*, p. 342, India, HAMPSON, Moths of India, i : n. spp.
- Drucea*, n. n. for pt. of *Mastigocera* ; KIRBY, p. 130, Cat. Lep. Het. i.
- Drymæa*, Butl. : characters and systematic position discussed ; SNELLEN, pp. 20-23, Tijdschr. Ent. xxxv.
- Duga rana*, Goram, SWINHOE, p. 96, pl. iii, fig. 3, Cat. Lep. Oxford, n. sp.
- Duomitus kilimanjarensis*, E. Africa, HOLLAND, Ent. xxv (Supp.) p. 94 ;  
*D. fuscipars*, Sikhim, HAMPSON, p. 309, Moths of India, i : n. spp.
- Dycladia catherina*, *rogenhoferi*, *epimetheus*, p. 275, *broteas*, p. 276, Brazil, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i), n. spp.
- Dysodia albifurca*, Sikkim, HAMPSON, p. 369, Moths of India, i, n. sp.
- Earias chlorophyllana*, Mardin, STAUDINGER, p. 249, Deutsche e. Z. Lep. iv, n. sp.
- Echedorus argentina*, Brazil, SCHAUS, p. 321, P. Z. S. 1892, n. sp.
- Ecpantheria pellucida*, Brazil, SCHAUS, p. 282, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. iii, figs. 11 & 12), n. sp.
- Ectrocta*, n. g., *Bombycidæ*, for *E. diaphana*, n. sp., Burma ; HAMPSON, Moths of India, i, p. 33.
- Eligma duplicata*, Trop. Africa ; AURIVILLIUS, Ent. Tidskr. xiii, p. 190.
- Ellida* (sub *Edema*) *transversata*, Wlk., = (*gelida*, Grt.) ; SMITH, p. 135, Canad. Ent. xxiv.
- Encaumaptera*, n. g., *Arbelidæ*, p. 315, for *E. stigmata*, n. sp., Nilgiris, p. 316, HAMPSON, Moths of India, i.
- Endagria fuscula*, Tunis, STAUDINGER, p. 283, pl. iii, fig. 10, Deutsche e. Z. Lep. v ; *E. cossoides*, Centr. Asia, GRAESER, p. 300, Berl. Ent. Zeit. xxxvii, n. sp.
- Ephemeroidea*, n. g., *Zygænidæ*, for *E. ariel*, *flavocincta*, n. spp., Burma, HAMPSON, p. 242, Moths of India, i.
- Epimydia*, n. g. for *E. dialampa*, n. sp., Siberia, pl. iii, fig. 2 ; STAUDINGER, p. 346, Deutsche e. Z. Lep. v.

- Eremocossus*, n. g., *Cossidæ*, type *fædus*, Swinh. ; HAMPSON, p. 313, Moths of India, i.
- Eressa politula*, India, p. 52, *detola*, *olinda*, Australia, p. 53, SWINHOE, Cat. Lep. Oxford, n. spp.
- Eriogaster lanestris*, variation in colour of cocoons discussed ; BATESON (40, 41).
- Eriphioides*, n. n. for *Eriphia*, Feld. ; KIRBY, p. 159, Cat. Lep. Het. i.
- Eterusia submarginalis*, Cambodia, SWINHOE, p. 81, Cat. Lep. Oxford, n. sp.
- Etobesa tizoc*, Peru, SCHAUS, p. 339, P. Z. S. 1892, n. sp.
- Eucereon ladas*, Brazil, SCHAUS, p. 278, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i, fig. 26) ; *E. clementsi*, St. Lucia, SCHAUS, p. 10, pl. i, fig. 25, t. c. : n. spp.
- Eudelia venusta*, Wlk., = (*Bombyx aristotelicæ*, *rufescens*, Phil.) ; REED, p. 68, Act. Soc. Chili, i.
- Eudoxyla bosschæ*, Borneo, HEYLAERTS, p. 45, Ann. Ent. Belg. xxxvi, n. sp.
- Eudryas grata*, var., = (*stæ. johannis*, Wlk.), note on ; SMITH, p. 134, Canad. Ent. xxiv. *E. stæ. johannis*, note on ; GROTE, p. 236, Canad. Ent. xxiv.
- E. ? liturata*, Cameroons, AURIVILLIUS, Ent. Tidskr. xiii, p. 187, n. sp.
- Eudule venata*, Peru, *aurata*, Brazil, SCHAUS, p. 284, P. Z. S. 1892 (figured, SCHAUS, pl. ii, American Lep.), n. spp.
- Eulimacodes möschleri*, Mexico, SCHAUS, p. 324, P. Z. S. 1892, n. sp.
- Eumeta javanica*, Java, *wallacei*, Borneo, SWINHOE, p. 226, Cat. Lep. Oxford, n. spp.
- Euproctis fulviceps*, variation ; MEYRICK, p. ii, P. E. Soc. 1892.
- E. negrita*, p. 471, *arenacea*, p. 476, *antiphates*, p. 478, *flavimaculata*, p. 480, *albopunctata*, *nigripennis*, p. 481, India, HAMPSON, Moths of India, i ; *E. (Charotricha) sabulosa*, p. 8, *cinerea*, p. 10, Java, HEYLAERTS, Ann. Ent. Belg. xxxvi : n. spp.
- Eupyra psittacus*, *consors*, *aurata*, p. 273, *bacchans*, p. 274, Peru, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. i), n. spp.
- Euschema* : vide *Geometridæ*.
- Eusemia communis*, *fasciatrix*, *communicans*, *vetula*, variation noticed, *E. hesperioides*, pl. v, fig. 3, *saturata*, fig. 1, figured ; SWINHOE, p. 160, Cat. Lep. Oxford. *E. opheltes*, ♂ figured ; POUJADE, pl. xi, figs. 4 & 4a, N. Arch. Mus. Paris (3) iii. *E. xanthopyga*, fig. 1, *mozambica*, fig. 2, *longipennis*, fig. 3, *deficiens*, fig. 4, pl. viii, *novemmaculata*, pl. ix, fig. 1, *nigridorsa*, fig. 2, *eoæ*, pl. xi, fig. 1, figured ; MABILLE & VUILLOT, Nov. Lep. *E. vilithoroides*, figured ; OBERTHUR, pl. i, fig. 4, p. 8, Études d'Ent. xvi.
- E. millionata*, Philippines, pl. v, fig. 2, p. 162, *doreana*, Dorey, fig. 4, p. 164, SWINHOE, Cat. Lep. Oxford, n. spp.
- Eutane brevis*, Borneo, SWINHOE, p. 126, pl. iii, fig. 13, Cat. Lep. Oxford, n. sp.
- Felderia*, n. n. for *Acreagris*, Feld. ; KIRBY, p. 163, Cat. Lep. Het. i.

- Flavinia dubia, darna, janeira*, Brazil, *quicha*, p. 286, *chibcha*, p. 287, Peru, SCHAUS, P. Z. S. 1892 (*cf. Cyllopoda*), n. spp.
- Galethalea peruviana*, Peru, SCHAUS, p. 277, P. Z. S. 1892 (figured, SCHAUS, pl. i, fig. 22, American Lep.), n. sp.
- Gangamela aymara*, Peru, SCHAUS, p. 285, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 9), n. sp.
- Gangarides vardena*, Borneo, SWINHOE, p. 270, pl. vii, fig. 3, Cat. Lep. Oxford, n. sp.
- Gardinia*, n. n. for *Chrysocale*, Butl. ; KIRBY, p. 286, Cat. Lep. Het. i.
- Gargetta nagaensis*, p. 135, *curvaria, albimacula*, p. 136, India, HAMPSON, Moths of India, i, n. spp.
- Gartha dalsa*, Brazil, SCHAUS, American Lep. i, pl. i, fig. 15, n. sp.
- Gastropacha quercifolia*, scale-like hairs ; PACKARD, Ann. N. H. (6) ix, p. 373.
- G. gabunica*, W. Africa, AURIVILLIUS, p. 199, Ent. Tidskr. xiii, n. sp.
- Givira tecmessa, philomela*, Brazil, SCHAUS, p. 329, P. Z. S. 1892, n. spp.
- Glaucopis iridea*, Sierra Leone, MABILLE, p. cxxxviii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Gluphisia trilineata*, full-grown larva ; BEUTENMULLER, p. 67, Bull. Am. Mus. iv.
- G. quinquelinea*, Oregon, DYAR, p. 168, Ent. News, iii, n. sp.
- Goë*, n. g., *Zygenidæ*, for *G. diaphana*, n. sp., Burma ; HAMPSON, p. 242, Moths of India, i.
- Gonimbrasia rubricostalis*, Sierra Leone, KIRBY, p. 174, pl. xi, fig. 2, Ann. N. H. (6) ix, n. sp.
- Gonometa sjostedti*, Cameroons, AURIVILLIUS, p. 199, Ent. Tidskr. xiii, n. sp.
- Gorgopis abbottii*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 94, n. sp.
- Gurna*, n. g. for *Dysauxes indica*, Moore ; SWINHOE, p. 123, Cat. Lep. Oxford.
- Gymnelia serra*, Brazil, SCHAUS, p. 274, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i, fig. 10), n. sp.
- Gynanisa isis*, Westw., ♀ described ; KIRBY, Ent. xxv, p. 267.
- Halias chlorana*, variation in colour of cocoons ; TUTT, Ent. Rec. iii, p. 9.
- Halisidota*, notes on species of ; DYAR, Canad. Ent. pp. 304–306. *H. alni* and *agassizii*, larvæ noticed ; DYAR, Psyche, vi, p. 323.
- H. sanguivenosa*, Vancouver I., NEUMOEGEN, p. 228, Canad. Ent. xxiv ; *H. oruba*, Brazil, SCHAUS, p. 280, P. Z. S. 1892 : n. spp.
- Hallicarnia*, n. n. for *Polymona*, Wlk. ; KIRBY, p. 822, Cat. Lep. Het. i.
- Haloplia*, n. g., *Drepanulidæ*, for *Nelcynda orciferaria*, Wlk. ; SNELLEN, p. 14, the insect figured, pl. i, fig. 1, Tijdschr. Ent. xxxv.
- Hanisa subnotata*, figured, pl. viii, fig. 16 ; SWINHOE, Cat. Lep. Oxford.
- Hapigia xolotl*, Mexico, p. 339, *accipiter, phocus*, p. 340, Brazil, SCHAUS, P. Z. S. 1892, n. spp.
- Harpyia ? tenuis*, Brazil, SCHAUS, p. 336, P. Z. S. 1892, n. sp.

- Harrisina janeira, dantasi, eminens*, Brazil, SCHAUS, p. 272, P. Z. S. 1892 (figured, pl. i, figs. 1 & 2, SCHAUS, American Lep. i) : n. spp.
- Hectomanes fusca, crocea*, Australia, LUCAS, p. 283, P. Linn. Soc. N.S.W. (2) vi ; *H. pteromela*, S. Australia, LOWER, p. 5, Tr. R. Soc. S. Austr. xv : n. spp.
- Heliura venata*, Butl., = (*ælia*, Schaus), figured, pl. i, fig. 20 ; SCHAUS, American Lep.
- Hepialiscus*, n. g., *Hepialidæ*, type *nepalensis*, Wlk. ; HAMPSON, p. 317, Moths of India, i.
- Hepialus* (*Charagia*) *blackburnii*, S. Australia, LOWER, p. 5, Tr. R. Soc. S. Austr. xv ; *H. daphnandra, hilaris*, Australia ; LUCAS, p. 284, P. Linn. Soc. N.S.W. (2) vi ; *H. kenice*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 94 : n. spp.
- Heterocampa læca*, p. 333, *hertha, limosa, virgea*, Brazil, p. 334, *epona*, Peru, *atrax, perilleus*, Brazil, p. 335, SCHAUS, P. Z. S. 1892, n. spp.
- Heteropan* = (*Birtina*, Wlk.) *lycænoides*, Wlk., figured, pl. ii, fig. 12 ; SWINHOE, Cat. Lep. Oxford.
- H. flavimacula*, Burma, HAMPSON, p. 256, Moths of India, i, n. sp.
- Heterusia luteoradiata*, Costa Rica, THIERRY-MIEG, p. 236, Le Nat. 1892, n. sp.
- Heylaertsia*, n. subg. of *Psyche* for *griseata, fusca, nudilineata*, Hmpsn. ; HAMPSON, p. 298, Moths of India, i.
- Hildala*, n. g., *Limacodidæ*, p. 231, for *H. miniacea, uniformis*, n. spp., Port Essington, p. 232 ; SWINHOE, Cat. Lep. Oxford.
- Histia albimacula*, Burma, HAMPSON, p. 280, Moths of India, i, n. sp.
- Hydrius bochica*, Peru, *theresa, braganza, lacrimosa*, p. 320, *sordida*, p. 321, Brazil, SCHAUS, P. Z. S. 1892 ; *H. victorio*, Loja, *pompilus* (sic), Palandra, DOGNIN, p. 131, Le Nat. 1892 : n. spp.
- Hydrusa chroma*, Australia, p. 50, *basirufa*, Cambodia, p. 51, SWINHOE, Cat. Lep. Oxford ; *H. recedens*, Queensland, LUCAS, p. 281, P. Linn. Soc. N.S.W. (2) vi : n. spp.
- Hygrochroa limosa*, Brazil, SCHAUS, p. 325, P. Z. S. 1892, n. sp.
- Hylesia muscula*, Brazil, VUILLOT, p. cxcii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Hyparpax venus*, Colorado, NEUMOEGEN, p. 226, Canad. Ent. xxiv, n. sp.
- Hypatia*, n. n. for *Hysia*, Wlk. ; KIRBY, p. 147, Cat. Lep. Het. i.
- Hyperæschra nigribasis*, Sikkim, HAMPSON, p. 165, Moths of India, i, n. sp.
- Hypolamprus*, n. g., *Thyrididæ*, p. 364, type *striatalis*, Swinhoe, and including *H. obscuralis, atrostriatus*, n. spp., India, p. 365 ; HAMPSON, Moths of India, i.
- Hypoprepia miniata*, egg and young larva ; BLAISDELL, p. 246, Ent. News, iii.
- Hypsa perimele*, Weym., characters and position noticed, p. 88, *isthmia*, Wlk., figured, pl. iii, fig. 2 ; SWINHOE, Cat. Lep. Oxford.
- Hypsa nicobarica*, Nicobar Is., *malisa*, Halmaheira, p. 87, *ghara*, Ké I., p. 89, *albiformis*, Borneo, p. 90, *ochrealis*, Goram, *avacta*, Batchian, p. 92, SWINHOE, Cat. Lep. Oxford, n. spp.

- Ichthyosoma cassiope*, Brazil, SCHAUS, p. 341, P. Z. S. 1892, n. sp.
- Ichthyura bifria*, early stages; DYAR, Ent. News, iii, p. 5. *I. vau*, larval stages; BEUTENMÜLLER, p. 67, Bull. Am. Mus. iv; *I. albo-sigma*, n. var. *specifica*; DYAR, Canad. Ent. xxiv, p. 180.
- I. multnoma*, Oregon, DYAR, Canad. Ent. xxiv, p. 179; *I. costicomma*, India, HAMPSON, Moths of India, i, p. 173: Nilgiri Hills, SWINHÖE, p. 301, Cat. Lep. Oxford: n. spp.
- Idalus ortus*, Brazil, SCHAUS, p. 279, P. Z. S. 1892 (figured, SCHAUS, American Lep., pl. ii, fig. 1), n. sp.
- Idonauton*, n. g. for *Limacodes apicalis*, Wlk.; SWINHÖE, p. 238, Cat. Lep. Oxford.
- Isa textula*, notes on; MORTON, Ent. News, iii, p. 1.
- Isanthrene gaza*, Peru, SCHAUS, p. 274, P. Z. S. 1892 (figured, pl. i, fig. 9, American Lep. i), n. sp.
- Jana gabunica*, W. Africa, AURIVILLIUS, p. 195, Ent. Tidskr. xiii, n. sp.
- Janassa cerigoides*, figured; SWINHÖE, pl. vii, fig. 5, Cat. Lep. Oxford.
- Katha apicalis*, Wlk. (sub *Lithosia*), figured, pl. iv, fig. 9; SWINHÖE, Cat. Lep. Oxford.
- Kosala rufa*, Nāga Hills, HAMPSON, p. 419, Moths of India, i, n. sp.
- Laelia prolata*, India, SWINHÖE, p. 195, Cat. Lep. Oxford; *L. heterogyna*, Kashmir, HAMPSON, p. 443, Moths of India, i: n. spp.
- Laganda picaria*, Wlk., figured, pl. vii, fig. 2, SWINHÖE, Cat. Lep. Oxford.
- Lagoa* to be the type of a new family, *Lagoidæ*; PACKARD, Psyche, vi, p. 281: on the seven pairs of abdominal legs and metameric glandular processes of larva; PACKARD, Zool. Anz. xv, pp. 229-234.
- Langsdorfia polybia*, Brazil, SCHAUS, p. 329, P. Z. S. 1892, n. sp.
- Lasiocampa dieckmanni*, figured, pl. iv, fig. 5; Romanoff Mem. vi. *L. læta*, Wlk., figured, pl. v, fig. 1, larva noticed, p. 315; STAUDINGER, t. c.
- L. (Chrysopoloma) theorini*, Gaboon, AURIVILLIUS, p. 198, Ent. Tidskr. xiii; *L. salambo*, Delagoa Bay, VUILLOT, p. cxc, Bull. Soc. Ent. Fr. lxi: n. spp.
- Lebeda doeri*, Brazil, SCHAUS, p. 319, P. Z. S. 1892, n. sp.
- Leptosoma mundipicta*, figured, pl. v, fig. 14; SWINHÖE, Cat. Lep. Oxford.
- L. santicum*, Philippines, p. 142, *absurdum*, Salawatti, *acceptum*, Celebes, pl. v, fig. 5, *kala*, Ké I., fig. 8, p. 143, *confusum*, *kondekum*, Java, *proprium*, Manilla, fig. 12, p. 144, *ægrotum*, New S. Wales, fig. 15, p. 145, *galbanum*, Philippines, p. 146, SWINHÖE, Cat. Lep. Oxford, n. spp.
- Leptothrix*, n. g., *Zygænidæ*, for *L. tettigonioides*, n. sp., Sumatra; HEYLAERTS, p. 47, Ann. Ent. Belg. xxxvi.
- Leucodrepana*, n. g., *Drepanulidæ*, for *L. idæoides*, *nivea*, *obliquilinea*, n. spp., Sikkim, HAMPSON, p. 333, Moths of India, i.
- Leucoma salicis*, embryology; HENKING, Z. wiss. Zool. liv, p. 166.

- L. taretensis*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 93; *L. thyridophora*, India, HAMPSON, p. 488, Moths of India, i; *L. lobipennis*, Dorey, SWINHÖE, p. 203, Cat. Lep. Oxford : n. spp.
- Liparis monacha*, habits of larva, &c.; FENK (279). *L. salicis*, destruction by parasites; CARPENTIER, Bull. Soc. L. Nord France, x, p. 35.
- L. preussi*, W. Africa, MABILLE & VUILLOT, Nov. Lep. p. 57, pl. ix, fig. 5 (referred by Kirby in Cat. Lep. Het. to *Phægorista* in *Nyctemeridæ*), n. sp.
- Liparopsis*, n. g., *Notodontidæ*, for *L. postalbida*, n. sp., Naga Hills; HAMPSON, Moths of India, i, p. 154.
- Lirimiris mechanica*, Loja, DOGNIN, p. 169, Le Nat. 1892, n. sp.
- Lithosia* (sub *Tinea*) *entella*, Cr., = (*Gnophria ceramensis*, Voll.); WEYMER, S. E. Z. liii, p. 122. *L. caniola*, var. *complanoides*; FUCHS, JB. nass. Ver. xlv, p. 88. *L. tosola*, *sexmaculata*, figured, pl. ix, figs. 2 & 3, MABILLE & VUILLOT, Nov. Lep.
- L. pusa*, Loja, DOGNIN, p. 185, Le Nat. 1892, n. sp.
- Lobeza favilla*, Loja, DOGNIN, p. 33, Le Nat. 1892, n. sp.
- Lepa doginia*, China, SONTHOXNAX, Échange, 1892, p. 20, n. sp.
- Lomera albifrons*, Australia, SWINHÖE, p. 225, Cat. Lep. Oxford, n. sp.
- Lonomia carnica*, Brazil, SCHAUS, p. 318, P. Z. S. 1892, n. sp.
- Lophopteryx atrofusa*, Sikkim, HAMPSON, p. 166, Moths of India, i, n. sp.
- Lophosoma*, n. g. for *Syntomis cuprea* and *quadricolor*, Wlk.; SWINHÖE, p. 58, Cat. Lep. Oxford.
- Lyces mæra*, Brazil, SCHAUS, p. 285, P. Z. S. 1892 (figured, pl. ii, fig. 17, SCHAUS, American Lep.), n. sp.
- Lyclene vagilinea*, figured, pl. iv, fig. 11; SWINHÖE, Cat. Lep. Oxford.
- L. ruenca*, Sula, SWINHÖE, p. 101, pl. iv, fig. 15, Cat. Lep. Oxford, n. sp.
- Lymantria manicata*, Cameroons, AURIVILLIUS, p. 193, Ent. Tidskr. xiii, n. sp.
- Macrocrambus*, n. n. for *Crambomorpha*, Feld.; KIRBY, p. 337, Cat. Lep. Het. i.
- Macromphalia dedecora*, Feist., = (*uncilla*, Phil.), *rubrogrisea*, Phil., = (*rustica*, Phil.); REED, p. 68, Act. Soc. Chili, i.
- Macronola*, n. n. for *Cyana*, Wlk.; KIRBY, p. 299, Cat. Lep. Het. i.
- Macroplectra*, n. g., *Limacodidæ*, type *minutissima*, Swinh.; HAMPSON, p. 376, Moths of India, i.
- Mardara allostriata*, Manipur, HAMPSON, p. 455, Moths of India, i, n. sp.
- Marthula nora, pleione*, Brazil, SCHAUS, p. 341, P. Z. S. 1892, n. spp.
- Marsypophora dissimilipennis*, Loja, DOGNIN, Le Nat. 1892, p. 123, n. sp.
- Massaga delicia*, Butl., ♀ described; AURIVILLIUS, p. 186, Ent. Tidskr. xiii.
- Maxia*, n. n. for *Phryganopteryx*, Saalm.; KIRBY, p. 206, Cat. Lep. Het. i.
- Megaceramis*, n. g., *Notodontidæ*, for *M. lamprolepis*, n. sp., Sikkim; HAMPSON, p. 167, Moths of India, i.
- Megalopyge radiata, acca*, Brazil, SCHAUS, p. 322, P. Z. S. 1892, n. spp.

- Mekla*, n. g., *Cossidæ*, for *Degia deficiens*, Wlk. ; SWINHÖE, p. 283, Cat. Lep. Oxford.
- Melanchroia braganza, palmeira*, Brazil, SCHAUS, p. 288, P. Z. S. 1892 (figured and referred to *Leucopsumis*, SCHAUS, p. 8, pl. ii, figs. 24 & 26, American Lep.), n. spp.
- Melanothrix leucotrigona*, Burma, HAMPSON, Moths of India, i, p. 44, n. sp.
- Melia*, n. g., near *Ptilophora*, for *M. danbyi*, n. sp., British Columbia ; NEUMÖEGEN, p. 225, Canad. Ent. xxiv.
- Mennis sceata, cytherea*, Peru, *una*, Brazil, SCHAUS, p. 287, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii), n. spp.
- Metagarista mænas*, synonymical note ; WEYMER, p. 125, S. E. Z. liii. *M. triphænoides* and *mænas*, synonymy ; AURIVILLIUS, Ent. Tidskr. xiii, p. 184.
- M. aziyade*, Sierra Leone, VUILLOT, p. cxl, Bull. Soc. Ent. Fr. lxi, n. sp.
- Metanastria obliquifascia*, Darjiling, p. 263, *lucifuga*, Singapore, p. 264, pl. vi, fig. 5, SWINHÖE, Cat. Lep. Oxford, n. spp.
- Metarctia inconspicua*, Trop. Africa, HOLLAND, Ent. xxv (Supp.), p. 93, n. sp.
- Metaschalis*, n. g., *Notodontidæ*, type *disrupta*, Moore ; HAMPSON, Moths of India, i, p. 158.
- Metosamia*, n. g., *Saturniidæ*, p. 276, for *M. godmani*, n. sp., Mexico, p. 277, DRUCE, Ann. N. H. (6) ix.
- Metriophyla lena*, Peru, SCHAUS, p. 277, P. Z. S. 1892 (figured, pl. i, fig. 24, SCHAUS, American Lep.), n. sp.
- Mila*, n. g., *Agaristidæ*, for *Hypsa concinnula*, Mab. ; AURIVILLIUS, Ent. Tidskr. xiii, p. 187.
- Milleria cyanivena*, Burma, HAMPSON, p. 263, Moths of India, i, n. sp.
- Mimeusemia tara*, Borneo, SWINHÖE, p. 167, pl. vi, fig. 11, Cat. Lep. Oxford, n. sp.
- Monotropia*, n. n. for *Licnoptera*, Meyr. ; KIRBY, p. 307, Cat. Lep. Het. i.
- Mydrothauma*, n. g., near *Eupyra*, p. 121, for *M. ada*, n. sp., Borneo, p. 122, pl. vi, fig. 1, BUTLER, P. Z. S. 1892, n. sp.
- Næarasa*, n. n., to replace *Næara*, H.-Sch. ; STAUDINGER, p. 299, Romanoff Mem. vi.
- Naclia syntomida*, Mardin, STAUDINGER, p. 248, Deutsche e. Z. Lep. iv ; *N. ? erythrogaster*, Freetown, MABILLE, p. cxxxix, Bull. Soc. Ent. Fr. lxi ; *N. aitcha*, p. cxl, *msila*, p. cxli, Sierra Leone, VUILLOT, t. c. : n. spp.
- Nadata oregonensis*, number of larval stages discussed ; DYAR, Psyche, vi, p. 337.
- Narosa velutina*, figured ; SWINHÖE, pl. vii, fig. 8, Cat. Lep. Oxford.
- Nelo lippa*, p. 287, *caullama*, p. 288, Peru, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 18) ; *N. solimara*, Colombia, THIERRY-MIEG, p. 262, Le Nat. 1892 : n. spp.
- Nemeta* : characters and affinities ; SNELLEN, p. 9, Tijdschr. Ent. xxxv.
- Neochera butleri*, Assam, p. 84, *zaria*, Manilla, p. 85, SWINHÖE, Cat. Lep. Oxford, n. spp.

- Neomiresa copac*, Peru, SCHAUS, p. 324, P. Z. S. 1892, n. sp.
- Nerice bidentata*, early stages ; SOULE, Psyche, vi, p. 276 : metamorphoses ; MARLATT, Tr. Kansas Ac. xi, p. 110, figs.
- N. ? leechi*, Amurland, STAUDINGER, p. 348, pl. v, fig. 2, Romanoff Mem. vi ; *N. upina*, China, ALPHÉRAKY, p. 17, pl. i, fig. 7, t. c. ; *N. disjuncta*, Loja, DOGNIN, p. 85, Le Nat. 1892 : n. spp.
- Nesace*, n. n. for part of *Euchromia*, Walk. ; KIRBY, p. 112, Cat. Lep. Het. i.
- Neurosymploca agria*, Transvaal, DISTANT, p. 236, pl. ii, fig. 9, Naturalist Transvaal, n. sp.
- Newmania*, n. g., *Liparidæ*, for *Teara guenei*, Newm. ; SWINHOE, p. 199, Cat. Lep. Oxford.
- Nishada fasciculosa* figured, pl. iv, fig. 16 ; SWINHOE, Cat. Lep. Oxford.
- Nola fumosa*, Butl. = (*strigulosa*, Stgr.) ; STAUDINGER, p. 256, Romanoff Mem. vi. *N. minuscula*, larva ; DYAR, Psyche, vi, p. 248.
- N. candidalis*, Amurland, STAUDINGER, p. 258, Romanoff Mem. vi ; *N. lactaria*, Amurland, GRAESER, p. 211, Berl. Ent. Zeit. xxxvii ; *N. quadrimaculata*, p. 43, *vanhasseltii*, p. 44, Java, HEYLAERTS, Ann. Ent. Belg. xxxvi : n. spp.
- Nossa*, n. n. for *Atossa*, Moore ; KIRBY, p. 56, Cat. Lep. Het. i.
- Notodonta streckfussi*, Carinthia, HONRATH, p. 445, Berl. Ent. Zeit. xxxvi ; *N. vittata*, Anti-Taurus, STAUDINGER, p. 262, Deutsche e. Z. Lep. iv ; *N. graeseri*, p. 351, pl. v, fig. 3, *aliena*, fig. 4, p. 352, *oberthuri*, fig. 5, p. 354, Amurland, STAUDINGER, Romanoff Mem. vi ; *N. ? argenteo-maculata*, Cameroons, AURIVILLIUS, p. 196, Ent. Tidskr. xiii ; *N. rufa*, Nāga Hills, HAMPSON, Moths of India, i, p. 163 ; *N. descherei*, British Columbia, NEUMOEGEN, p. 227, Canad. Ent. xxiv : n. spp.
- Nudaria murina*, varr. described ; STAUDINGER, p. 249, Deutsche e. Z. Lep. iv.
- Numenes siletti*, neuraction outlined ; SWINHOE, p. 206, Cat. Lep. Oxford.
- Nyctemera amica*, metamorphoses ; WHITE, p. 68, Vict. Nat. ix.
- N. secundiana*, Queensland, LUCAS, p. 280, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Nyssia vetusta*, pl. viii, fig. 15, *cruda*, fig. 12, figured and referred to *Thosea*, p. 237 ; SWINHOE, Cat. Lep. Oxford.
- Nyssia sulla*, Brazil, SCHAUS, p. 324, P. Z. S. 1892, n. sp.
- Oberthueria*, n. n. for *Euphraor*, Oberth. ; KIRBY, p. 720, Cat. Lep. Het. i.
- Oberthuria*, n. g. for *Euphranor cæca*, Oberth. ; STAUDINGER, p. 337, Romanoff Mem. vi.
- Ocinara albiceps*, Wlk. (sub *Naprepa*), figured, pl. vii, fig. 7 ; SWINHOE, Cat. Lep. Oxford.
- Ocneria lapidicola*, varr. described ; STAUDINGER, p. 337, Deutsche e. Z. Lep. iv.
- O. destituta*, Taurus, STAUDINGER, p. 256, Deutsche e. Z. Lep. iv, n. sp.
- Ocnerogyia*, n. g., *Liparidæ*, for *O. amanda*, n. sp., Taurus ; STAUDINGER, p. 254, Deutsche e. Z. Lep. iv.

- Odonestis inobtrusa*, Wlk., figured ; SWINHOE, pl. vi, fig. 15, Cat. Lep. Oxford.
- O. directa*, Japan, p. 261, pl. vi, fig. 4, SWINHOE, Cat. Lep. Oxford ; *O. castanea*, p. 426, *isocyma*, p. 427, E. India, HAMPSON, Moths of India, i : n. spp.
- Cedema matheis*, Brazil, *tlotzin*, Mexico, SCHAUS, p. 332, P. Z. S. 1892, n. spp.
- Cedemasia salicis*, = (*Dryocampa riversii*, Behr.); DYAR, Psyche, vi, p. 222.
- Ce. terrena*, *maxtla*, Mexico, *guarana*, p. 331, *inca*, Peru, p. 332, SCHAUS, P. Z. S. 1892 : n. spp.
- Celonia*, n. g. for *Pseudopsyche*, Edw. ; KIRBY, p. 524, Cat. Lep. Het. i.
- Oiketicus abbotii*, prolongation of larval life ; SLOSSON, Ent. News, v, p. 49.
- Olceclosteria maya*, Mexico, *mutusca*, Brazil, SCHAUS, p. 326, P. Z. S. 1892, n. spp.
- Olene basinigra*, Sumatra, HEYLAERTS, p. 11, Ann. Ent. Belg. xxxvi, n. sp.
- Opharus lugubris*, *morosus*, Brazil, SCHAUS, p. 282, P. Z. S. 1892, n. spp.
- Oreta obliquilinea*, p. 349, *griseotincta*, p. 350, India, HAMPSON, Moths of India, i ; *O. singapura*, Singapore, SWINHOE, p. 243, pl. vii, fig. 15, Cat. Lep. Oxford : n. spp.
- Orgyia cana*, metamorphoses ; DYAR, Psyche, vi, p. 203. *O. leucostigma*, metamorphoses ; DYAR, t. c., p. 324.
- Ormiscodes eumedidoides*, Amazons, *aurora*, Bogota, VUILLOT, p. exciii, Bull. Soc. Ent. Fr. lxi ; *O. opis*, Brazil, SCHAUS, p. 318, P. Z. S. 1892 : n. spp.
- Orna*, n. n. for *Euctenia*, Feld. ; KIRBY, p. 81, Cat. Lep. Het. i.
- Orthocraspeda*, n. g., *Limacodidae*, type *trima*, Moore ; HAMPSON, p. 393, Moths of India, i.
- Orthorene arpi*, *janeira*, Brazil, SCHAUS, p. 289, P. Z. S. 1892 (figured, pl. iii, SCHAUS, American Lep.), n. spp.
- Othria meridionalis*, Brazil, SCHAUS, p. 272, P. Z. S. 1892, n. sp.
- Oxyplax*, n. g., *Limacodidae*, type *ochracea*, Moore ; HAMPSON, p. 376, Moths of India, i.
- Pachyma*, n. g., near *Pachypasa*, p. 115, for *P. trapezina*, n. sp., Cameroons, p. 116 ; WEYMER, S. E. Z. liii.
- Pachypasa richelmanni*, E. Africa, WEYMER, S. E. Z. liii, p. 113, n. sp.
- Paidina obtusa*, var. *sutschana*, described ; STAUDINGER, p. 260, Romanoff Mem. vi.
- Palpifer*, n. g., *Hepialidae*, type *sexnotatus*, Moore ; HAMPSON, p. 316, Moths of India, i.
- Parasa argentilinea*, p. 389, *albipuncta*, p. 390, *dentata*, p. 391, India, HAMPSON, Moths of India, i ; *P. minima*, Mexico, SCHAUS, p. 322, P. Z. S. 1892 : n. spp.
- Pelobrochis*, n. g., near *Nudaria*, for *Scæodora rava*, Luc. ; LUCAS, p. 250, P. Linn. Soc. N.S.W. (2) vii.

- Pericopsis cubana*, H. Sch., = (*Phaloë gaumeri*, Druce); WEYMER, p. 122, S. E. Z. liii.
- P. montezuma*, Mexico, SCHAUS, p. 283, P. Z. S. 1892, n. sp.
- Peronotis naringa*, Philippines, pl. iii, fig. 16, p. 99, SWINHOE, Cat. Lep. Oxford, n. sp.
- Perophora corcovada*, p. 326, *acuta*, p. 327, Brazil, SCHAUS, P. Z. S. 1892, n. spp.
- Phacusa cyanocera*, Burma, HAMPSON, p. 241, Moths of India, i; *P. variata*, Dorey, SWINHOE, p. 58, Cat. Lep. Oxford : n. spp.
- Phægoptera schäfferi*, Brazil, p. 280, *proba*, Mexico, *notata*, *granifera*, *ursina*, Brazil, p. 281, SCHAUS, P. Z. S. 1892 (*notata*, *ursina*, *granifera*, figured, SCHAUS, American Lep. pl. iii), n. spp.
- Phalacra excisa*, Sikkim, HAMPSON, p. 345, Moths of India, i, n. sp.
- Phalænoides butleri*, pl. v, fig. 6, *macleayi*, fig. 11, p. 157, Australia, SWINHOE, Cat. Lep. Oxford, n. spp.
- Phassus punctimargo*, *viridis*, India, SWINHOE, p. 291, Cat. Lep. Oxford ; *P. punctimargo*, p. 319, *auratus*, *viridis*, p. 321, India, HAMPSON, Moths of India, i; *P. marcius*, Mexico, DRUCE, p. 273, Ann. N. H. (6) ix; *P. absyrtus*, Brazil, SCHAUS, p. 330, P. Z. S. 1892 : n. spp.
- Phauda fuscalis*, Assam, SWINHOE, p. 60, Cat. Lep. Oxford, n. sp.
- Pheosia portlandia*, early stages; DYAR, Psyche, vi, p. 351.
- P. excurvata*, Sikkim, HAMPSON, Moths of India, i, p. 161; *P. grisea*, India, SWINHOE, p. 298, Cat. Lep. Oxford : n. spp.
- Philagria*, n. n. for *Æonistis*, Hb.; KIRBY, p. 336, Cat. Lep. Het. i.
- Philenia*, n. n. for *Pharmacis*, Möschl.; KIRBY, p. 885, Cat. Lep. Het. i.
- Philudoria*, n. n. for *Odonestis*, Steph.; KIRBY, p. 820, Cat. Lep. Het. i.
- Phlebohecta*, n. g., *Chalcosiidae*, type *fuscescens*, Moore; HAMPSON, p. 251, Moths of India, i.
- Phragmataecia gummata*, Java, SWINHOE, p. 285, pl. viii, fig. 14, Cat. Lep. Oxford, n. sp.
- Phragmatobia lymphasea*, Loja, DOGNIN, p. 16, Le Nat. 1892, n. sp.
- Phya psamathe*, Brazil, SCHAUS, p. 339, P. Z. S. 1892, n. sp.
- Piarosoma*, n. g., *Zygænidae*, for *P. albicinctum*, n. sp., Burma; HAMPSON, p. 243, Moths of India, i.
- Pielus albofasciatus*, Swan River, SWINHOE, p. 289, Cat. Lep. Oxford, n. sp.
- Pinconia coa*, Mexico, SCHAUS, p. 322, P. Z. S. 1892, n. sp.
- Pintia insularis*, Singapore, SWINHOE, p. 76, Cat. Lep. Oxford, n. sp.
- Pirga*, n. g. for *P. mirabilis*, Auriv.; AURIVILLIUS, p. 193, Ent. Tidskr. xiii: figured; *op. cit.* xii, pl. ii, fig. 2.
- Pisara opalina*, fig. 14, *acontioides*, fig. 19, *lucidalis*, fig. 12, figured, pl. iv; SWINHOE, Cat. Lep. Oxford.
- Platyzygæna*, n. g., for *Soritia*? *moëlleri*, Elw.; SWINHOE, p. 57, Cat. Lep. Oxford.
- Pæcilocampa simplex*, Australia, SWINHOE, p. 267, Cat. Lep. Oxford, n. sp.
- Polythysana albescens*, Phil., = (*cinerescens*, Phil.); REED, p. 68, Act. Soc. Chili, i.

- Pompelon subcyanea*, Singapore, p. 71, *rotundata*, Java, p. 72, SWINHOE, Cat. Lep. Oxford, n. spp.
- Porina kershawi*, Australia, LUCAS, p. 282, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Porthesia melania*, Asia Minor, STAUDINGER, p. 255, Deutsche e. Z. Lep. iv; *P. isabellina*, Atjeh, HEYLAERTS, p. 9, Ann. Ent. Belg. xxxvi; *P. aurantiaca*, Sikkim, HAMPSON, p. 485, Moths of India, i : n. spp.
- Preptos*, n. g., *Lasiocampidæ*, p. 318, for *P. oropus*, n. sp., Mexico, p. 319; SCHAUS, P. Z. S. 1892.
- Pseudantheræa*, n. g., *Saturniide*, p. 109, for *P. daphne*, n. sp., Gold Coast, p. 110; WEYMER, S. E. Z. liii.
- Pseudantiora*, n. n. for *Antiora*, Möschl.; KIRBY, p. 566, Cat. Lep. Het. i.
- Pseudaphelia*, n. n. for *Aphelia*, Westw.; KIRBY, p. 771, Cat. Lep. Het. i.
- Pseudasbolia*, n. n. for *Asbolia*, Möschl.; KIRBY, p. 877, Cat. Lep. Het. i.
- Pseuderchia*, n. n. for *Erchia*, Wlk.; KIRBY, p. 410, Cat. Lep. Het. i.
- Pseudhypsa*, n. n. for *Aganais*, Boisd. pt.; KIRBY, p. 384, Cat. Lep. Het. i.
- Pseudojana*, n. g., *Eupterotidæ*, type *incandescens*, Wlk.; HAMPSON, Moths of India, i, p. 48.
- Pseudomya pellucida*, p. 274, *tijuca*, Brazil, *musca*, p. 275, Mexico, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i), n. spp.
- Pseudopsyche dembowskii*, notes on; STAUDINGER, p. 294, Romanoff Mem. vi.
- Psilura rubripunctata*, E. Africa, WEYMER, p. 108, S. E. Z. liii, n. sp.
- Psychidæ*: wing-neuration discussed; SPULER, Z. wiss. Zool. liii, p. 639.
- Psyche* (*Eurycyttarus*) *nigra*, p. 299, *decemvena*, p. 300, India, HAMPSON, Moths of India, i, n. spp.
- Pterostoma palpina*, n. var. *gigantina*; STAUDINGER, p. 363, Romanoff Mem. vi.
- Pydna eupatagia*, p. 141, *nigropuncta*, *nigrofasciata*, p. 142, India, HAMPSON, Moths of India, i; *P. calyptis*, Dorey, SWINHOE, p. 297, Cat. Lep. Oxford : n. spp.
- Pygæra curtula*, n. var. *canescens*; GRAESER, p. 303, Berl. Ent. Zeit. xxxvii. *P. troglodyta*, figured, pl. v, fig. 7, Romanoff Mem. vi.
- P. sieversi*, Amurland, STAUDINGER, p. 370, pl. v, figg. 6 a, b, Romanoff Mem. vi; *P. moderata*, Central Asia, GRAESER, p. 303, Berl. Ent. Zeit. xxxvii : n. spp.
- Pygetera*, n. n. for *Cataphractes*, Feld.; KIRBY, p. 446, Cat. Lep. Het. i.
- Pyrosis idiota*, ♂ ♀ figured, pl. iv, figg. 6, a, b, Romanoff Mem. vi.
- Rachia striata*, Sikkim, HAMPSON, p. 132, Moths of India, i, n. sp.
- Ramesa fuscipennis*, Burma, HAMPSON, Moths of India, i, p. 143, n. sp.
- Rezia*, n. n. for *Lagaria*, Walk.; KIRBY, p. 149, Cat. Lep. Het. i.
- Rhodareas*, n. g., for part of *Areas*; KIRBY, p. 254, Cat. Lep. Het. i.
- Rhodoneura obliquialis*, p. 355, *multipunctata*, p. 356, *hypargyra*, p. 357, *glaphyralis*, p. 359, *bipuncta*, p. 360, *cuprealis*, p. 361, *oligosticha*, *subcostalis*, *ferrofusa*, *uniformis*, p. 362, *bracteata*, *rufareta*, p. 363, *hypoxantha*, *tristis*, *munda*, p. 364, India, HAMPSON, Moths of India, i: (cf. also *Pyralidæ*, &c., p. 277), n. spp.

- Rhuda endymion*, Brazil, SCHAUS, p. 340, P. Z. S. 1892, n. sp.
- Rifargia cloelia*, Brazil, p. 338, *gelduba*, Mexico, p. 339, SCHAUS, P. Z. S. 1892, n. spp.
- Rosema excavata*, *luna*, Brazil, *lappa*, p. 337, *incita*, Peru, *languida*, *unda*, Brazil, p. 338, SCHAUS, P. Z. S. 1892, n. spp.
- Sangatissa pretoriae*, Transvaal, DISTANT, p. 408, Ann. N. H. (6) x, n. sp.
- Sapinella*, n. n. for *Eutheca*, Grote; KIRBY, p. 524, Cat. Lep. Het. i.
- Sarmalia alba*, Philippines, SWINHOE, p. 275, Cat. Lep. Oxford, n. sp.
- Sarothroceras rhomboidea*, Cameroons, WEYMER, p. 104, S. E. Z. liii, n. sp.
- Sarothripa reveyana*, larva; DYAR, Psyche, vi, p. 259.
- Saturniidae*, notes on various; KIRBY, Ent. xxv, pp. 267-269.
- Saturnia pavonia*, nature, and use of its spines; HEIM, p. xlviii, Bull. Soc. Ent. Fr. lxi. *S. arnobia*, peculiar chrysalis; HOLLAND, Psyche, vi, p. 213, pl. v. *S. carpini*, variation in colour of cocoons discussed; BATESON (40, 41).
- Scaptius juno*, Brazil, SCHAUS, p. 279, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 3), n. sp.
- Scea solaris*, Peru, SCHAUS, p. 285, P. Z. S. 1892 (figured, SCHAUS, pl. ii, fig. 14, American Lep.), n. sp.
- Scepsis nigricollum*, Loja, DOGNIN, p. 123, Le Nat. 1892, n. sp.
- Schizura conspecta*, egg and young larva; DYAR, Psyche, vi, p. 325.
- Sebastea*, n. n. for *Grotea*, Moore; KIRBY, p. 383, Cat. Lep. Het. i.
- Selca cuneifera*, Wlk. (sub *Melia*), figured, pl. iv, fig. 22; SWINHOE, Cat. Lep. Oxford.
- S. obscura*, Queensland, SWINHOE, p. 133, Cat. Lep. Oxford, n. sp.
- Semyra straminea*, Mexico, SCHAUS, p. 324, P. Z. S. 1892, n. sp.
- Sermyla morta*, Brazil, SCHAUS, p. 282, P. Z. S. 1892, n. sp.
- Sesapa divisa*, figured, pl. iv, fig. 21; SWINHOE, Cat. Lep. Oxford.
- Siglophora*, n. g., near *Chandica*, p. 123, for *S. bella*, n. sp., Borneo, p. 124, pl. vi, fig. 2; BUTLER, P. Z. S. 1892.
- Sitina albicans*, W. Australia, SWINHOE, p. 268, pl. vi, fig. 10, Cat. Lep. Oxford, n. sp.
- Somabrachys*, n. n. for *Brachysoma*, Aust.; KIRBY, p. 930, Cat. Lep. Het. i.
- Somatrichia*, n. n. for *Trichosoma*, Ramb.; KIRBY, p. 274, Cat. Lep. Het. i.
- Soritia bipartita*, Wlk., figured, pl. ii, fig. 9; SWINHOE, Cat. Lep. Oxford.
- S. viridivena*, *nigribasalis*, HAMPSON, p. 253, Moths of India, i, n. spp.
- Sozuza stevensii*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 91, n. sp.
- Spatalia albonotata*, Wlk. (sub *Allata*), pl. viii, fig. 2, *punctifera*, Wlk. (sub *Caschara*), fig. 4, *lativitta*, Wlk. (sub *Xylina*), fig. 1, figured; SWINHOE, Cat. Lep. Oxford.
- S. albifasciata*, Nilgiris, HAMPSON, Moths of India, i, p. 170, n. sp.
- Spilaretia abbotti*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 92, n. sp.
- Spilosoma urticae*, n. var. *quadripunctata*; COSMOVICI, p. 280, Le Nat. 1892; *S. urticae*, var. *paucipuncta*; FUCHS, p. 89, JB. nass. Ver. xlv.
- Stauropus fagi*, habits noticed; HOLLAND, Ent. M. M. xxviii, p. 206.

- S. pallidifascia*, p. 151, *albivertex, orbifer*, p. 152, India, HAMPSON, Moths of India, i, n. spp.
- Stenophylloides*, n. g., *Lasiocampidae*, type *sikkima*, Moore; HAMPSON, p. 429, Moths of India, i.
- Stibolepis atomaria*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 93, n. sp.
- Stichobasis*, n. n. for *Diabasis*, Heyl.; KIRBY, p. 519, Cat. Lep. Het. i.
- Strigoides fuscus*, p. 280, *decoratus*, p. 281, Australia, SWINHOE, Cat. Lep. Oxford, n. spp.
- Susica congrua*, Wlk., referred to *Natada*, p. 233, figured, pl. viii, fig. 6; SWINHOE, Cat. Lep. Oxford.
- Sychesia hartmanni, janeira*, Brazil, SCHAUS, p. 280, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. iii), n. spp.
- Symmerista dentata*, p. 335, *tethys, procne, myconos*, p. 336, Brazil, SCHAUS, P. Z. S. 1892, n. spp.
- Syntomis gracilis*, n. var. *lugens*; RÖBER, p. 325, Tijdschr. Ent. xxxiv. *S. caspia* and *annetta* are varr. of *maracandina*; ALPHÉRAKY, p. 4, Romanoff Mem. vi. *S. longipennis*, Wlk., figured, pl. ii, fig. 13, *S. annosa*, Wlk., figured and referred to *Hydrusa*, p. 51, pl. ii, fig. 17; SWINHOE, Cat. Lep. Oxford.
- S. sinterisi*, Kurdistan, STANDFUSS, p. 664, pl. xv, fig. 3, Romanoff Mem. vi; *S. rubicunda, pterophorina*, Natal, MABILLE, p. cxxxix, Bull. Soc. Ent. Fr. lxi; *S. unifascia*, p. 212, *flavifrons, quadrifascia*, p. 215, *chlorocera, luteifascia*, p. 218, *eressoides*, p. 220, *nigra, serrata*, p. 221, *ochreipuncta*, p. 222, *erythrosoma*, p. 223, India, HAMPSON, Moths of India, i; *S. cymatilis*, Philippines, p. 40, *insueta*, E. India, pl. ii, fig. 16, p. 41, *aurofasciata*, New Guinea, pl. ii, fig. 19, p. 43, *frustulenta*, Lizard I., p. 44, *deflocca*, Philippines, p. 45, *ypleta*, Waigiou, *formicina*, New Guinea, p. 47, *exapta*, Flores, *fata*, Borneo, p. 48, SWINHOE, Cat. Lep. Oxford; *S. trifenestra*, Letti, RÖBER, p. 324, Tijdschr. Ent. xxxiv (fig. in xxxv): n. spp.
- Syntomoides*, n. g., p. 209, type *imaon*, Cram., and including *S. microchilus*, n. sp., Tenasserim, p. 212; HAMPSON, Moths of India, i.
- Syntrichura doeri*, Brazil, SCHAUS, p. 276, P. Z. S. 1892 (figured, pl. i, fig. 16, American Lep.), n. sp.
- Syssphinx basirei*, Brazil, SCHAUS, p. 289, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. iii, fig. 5), n. sp.
- Tamphana*, n. g., *Bombyciidae*, for *T. marmorea*, n. sp., Brazil; SCHAUS, p. 325, P. Z. S. 1892.
- Tantura*, n. n. for *Penthetria*, Edw.; KIRBY, p. 86, Cat. Lep. Het. i.
- Tarchon minois*, Brazil, SCHAUS, p. 325, P. Z. S. 1892, n. sp.
- Tasema longipennis*, p. 236, *nigra*, p. 237, Burma, HAMPSON, Moths of India, i, n. spp.
- Teara erebodes*, Centr. Australia, LOWER, p. 14, Tr. R. Soc. S. Austr. xvi; *T. togata, fimbriata*, Queensland, LUCAS, p. 285, P. Linn. Soc. N.S.W. (2) vi: n. spp.
- Telea aurelia*, Mexico, DRUCE, p. 278, Ann. N. H. (6) ix, n. sp.
- Teracotona clara*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 92, n. sp.

- Termessa xanthomelas*, S. Australia, LOWER, p. 6, Tr. R. Soc. S. Austr. xv, n. sp.
- Tetraphleps*, n. g., type *brevilinea*, Wlk.; HAMPSON, p. 383, Moths of India, i.
- Teucer*, n. n. *Telioneura*, Feld.; KIRBY, p. 165, Cat. Lep. Het. i.
- Teulisna plagiata*, pl. iii, fig. 11, *chiloides*, pl. iv, fig. 10, figured; SWINHOE, Cat. Lep. Oxford.
- Theages vestalis*, Peru, SCHAUS, p. 278, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. i, fig. 23); *T. nubilosa*, *mamona*, Loja, DOGNIN, Le Nat. 1892, p. 144 : n. spp.
- Thyrassia inconcinna*, Lizard I., SWINHOE, p. 55, Cat. Lep. Oxford, n. sp.
- Ticera*, n. g., *Lasiocampidae*, for *T. castanea*, n. sp., Philippines; SWINHOE, p. 269, Cat. Lep. Oxford.
- Ticilia argentilinea*, figured, pl. vii, fig. 13, Cat. Lep. Oxford.
- Titya fumida*, p. 321, *argentata*, p. 322, Brazil, SCHAUS, P. Z. S. 1892, n. spp.
- Trabala cicur*, *brumalis*, Brazil, *drucei*, *cebrenis*, Mexico, SCHAUS, p. 323, P. Z. S. 1892, n. spp.
- Trabaloides*, n. n. for *Protogenes*, Saalm.; KIRBY, p. 818, Cat. Lep. Het. i.
- Trichata*, n. g., for *Syntomis teneiformis*, Wlk.; SWINHOE, p. 52, Cat. Lep. Oxford.
- Trichomelia celenna*, Brazil, SCHAUS, p. 283, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii, fig. 5), n. sp.
- Trichura cyanea*, Brazil, SCHAUS, p. 276, P. Z. S. 1892, n. sp.
- Triplophleps*, n. g., type *inferma*, Swinh.; HAMPSON, p. 393, Moths of India, i.
- Tristania*, n. n. for *Zonosoma*, Butl.; KIRBY, p. 423, Cat. Lep. Het. i.
- Tropæa mandschurica*, Ussuri, STAUDINGER, p. 331, Romanoff Mem. vi, n. sp.
- Trypanophora flavalis*, Burma; HAMPSON, p. 250, Moths of India, i, n. sp.
- Urocoma baliolalis*, N. S. Wales, SWINHOE, p. 215, pl. vi, fig. 7, Cat. Lep. Oxford, n. sp.
- Uropygia meticulodina*, larva figured, pl. iv, fig. 8, noticed, p. 344, STAUDINGER, Romanoff Mem. vi.
- Vipsania frigida*, Mexico, SCHAUS, p. 323, P. Z. S. 1892, n. sp.
- Virbia varians*, p. 284, *parva*, p. 285, Peru, SCHAUS, P. Z. S. 1892 (figured, SCHAUS, American Lep. pl. ii), n. spp.
- Xanthospilopteryx abacata*, p. 181, *lomata*, p. 182, W. Africa, KARSCH, Ent. Nachr. xviii; *X. athene*, p. 101, *minerva*, p. 103, E. Africa, WEYMER, S. E. Z. liii : n. spp.
- Zatrephes biseriata*, Plötz, systematic position queried; AURIVILLIUS, p. 196, Ent. Tidskr. xiii.
- Zebeeba*, n. n. for *Nycteola*, H.-S.; KIRBY, p. 279, Cat. Lep. Het. i.
- Zeuzera pyrina*, as N. American; SMITH, p. 136, Canad. Ent. xxiv : habits in N. America; PIKE, Ins. Life, iv, p. 317.
- Z. ? regia*, Taurus, STAUDINGER, p. 253, pl. iii, fig. 6, Deutsche e. Z. Lep.; *Z. congerens*, Australia, SWINHOE, p. 282, pl. viii, fig. 5, Cat. Lep. Oxford; *Z. ramosa*, Brazil, SCHAUS, p. 329, P. Z. S. 1892 : n. spp.

- Zonosoma*: cf. *Tristania*, p. 249, and *Geometridæ*, p. 273.  
*Zutulba*, n. n. for *Anteris*, Wallengr.; KIRBY, p. 80, Cat. Lep. Het. i.  
*Zygena niphona*, Butl., = (*christophi*, Stgr.); STAUDINGER, p. 251, Romanoff Mem. vi. *Z. cynara*, n. var. *turatii*; STANDFUSS, p. 368, MT. Schw. ent. Ges. viii. *Z. rhodamanthus*, n. var. *roederi*; STAUDINGER, p. 247, Deutsche e. Z. Lep. iv.  
*Z. sardoa*, Sardinia, MABILLE, p. cl, Bull. Soc. Ent. Fr. lxi; *Z. octo*, Transvaal, *holoxanthina*, Kitui, MABILLE, p. cxxxviii, Bull. Soc. Ent. Fr. lxi; *Z. erythrosoma*, E. India, HAMPSON, p. 231, Moths of India, i: n. spp.  
*Zygænopsis*, n. g. for *Z. fuscimarginalis*, Dorey, p. 61, *flavibasis*, Ké I., p. 62, n. spp.; SWINHOE, Cat. Lep. Oxford.

## CYMATOPHORIDÆ.

- [Cf. HAMPSON (384), STAUDINGER (779).]  
*Gaurena aurofasciata*, p. 181, *fuscescens*, *lichenea*, p. 182, India, HAMPSON, Moths of India, i, n. spp.  
*Habrosyne argenteipunctata*, Sikkim, HAMPSON, Moths of India, i, p. 179, n. sp.  
*Kerala*: generic characters; STAUDINGER, p. 381, Romanoff Mem. vi.  
*Nemacerota*, n. g., type *cinerea*, Warren; HAMPSON, p. 185, Moths of India, i.  
*Polyploca anguligera*, p. 183, *albibasis*, p. 184, India, HAMPSON, Moths of India, i, n. spp.  
*Toxoides*, n. g., p. 185, for *T. longipennis*, n. sp., Sikkim, p. 186, HAMPSON, Moths of India, i.

## NOCTUIDÆ.

- [Cf. ALPHÉRAKY (4, 779), AURIVILLIUS (23, 26), BUTLER (141, 142, 144, 145), DISTANT (216), DOGNIN (220), GRAESER (356, 357), HOLLAND (408), LUCAS (568, 569), MALLY (577), OLLIFF (654), POUJADE (702), RÜHL (790), SKINNER & MENGEL (850), SMITH (861, 862, 863, 867), STANDFUSS (779), STAUDINGER (779, 886, 890, 891), TUTT (955).]  
 Criticism of Butler's synonymy of N. American *Noctuidæ*; SMITH, Ent. xxv, p. 2.  
 Note on the points available for generic characters; SMITH, Ent. xxv, pp. 101-105.  
 Number of subdivisions; GROTE, Canad. Ent. xxiv, p. 17.  
 TUTT has published the second vol. of his work on the variation of British *Noctuidæ*.  
*Acantholipes* (sub *Hydrelia*) *circumdata*, Wlk., = (*Docela vetustalis*, Wlk.); BUTLER, Ent. xxv, p. 141.  
*Acherdoa ferraria*, Wlk., = (*Varina ornata*, Neum.); SMITH, p. 135, Canad. Ent. xxiv.

- Acontia delecta*, full-grown larva ; BEUTENMÜLLER, p. 68, Bull. Am. Mus. iv. *A. gratiosa*, Wallengr., = (*luteola*, Saalm.) ; SNELLEN, p. 77, Tijdschr. Ent. xxxv.
- Ædia*, Hb., = (*Anophia*, Gn.) ; BUTLER, p. 213, Ent. xxv.
- Acronycta* : structural details of larvæ and pupæ of British species, continued by CHAPMAN, in Ent. Rec. iii, pp. 1, &c., pls. iv & vi. *A. dactylina*, full-grown larva ; BEUTENMÜLLER, p. 77, Bull. Am. Mus. iv. *A. alni*, use of hairs ; FITZ-GIBBON, Ent. xxv, p. 39.
- A. terrigena*, Amurland, GRAESER, p. 214, Berl. Ent. Zeit. xxxvii, n. sp.
- Agrophila sulphuralis*, = (*Erastria pardalina*, Wlk.) ; BUTLER, p. 91, Ent. xxv.
- Agrotis sepulcralis*, pl. ii, fig. 2, *degeniata*, var. *aucta*, fig. 3, *pæcila*, fig. 4, *characteristica*, pl. i, fig. 9, figured ; Romanoff Mem. vi. *A. festiva*, n. var. *thulei*, *glareosa*, n. var. *edda*, *depuncta*, p. 266, *renigera*, p. 268, varr. described ; STAUDINGER, Deutsche e. Z. Lep. iv. *A. pachnoboides*, pl. vi, fig. 3, *militaris*, fig. 5, *nigricostata*, fig. 6, *præcurrens*, fig. 7, figured ; STAUDINGER, Romanoff Mem. vi.
- A. suecica*, Sweden, AURIVILLIUS, Nordens Fjärilar, pp. 113 & 121 ; *A. amœna*, Amasia, p. 267, *hadjina*, Taurus, p. 270, *mollis*, Margelan, p. 271, STAUDINGER, Deutsche e. Z. Lep. iv ; *A. honesta*, p. 354, pl. iii, fig. 3, *albivenata*, fig. 4, p. 359, *præcipua*, fig. 5, p. 360, *trifurcula*, fig. 6, p. 362, Siberia, STAUDINGER, op. cit. v ; *A. vidua*, p. 409, pl. vii, fig. 3, *umbra*, p. 411, Amurland, STAUDINGER, Romanoff Mem. vi ; *A. nigrita*, p. 217, *cicatricosa*, p. 218, *coturnicola*, p. 219, *lapidosa*, p. 220, E. Siberia, GRAESER, Berl. Ent. Zeit. xxxvii ; *A. dulcis*, Centr. Asia, ALPHERAKY, Hor. Ent. Ross. xxvi, p. 444 : n. spp.
- Ala pretiosa*, Central Asia, ALPHERAKY, p. 454, Hor. Ent. Ross. xxvi, n. sp.
- Alamis subcinerea*, Snell., = (*albangula*, Saalm.) ; SNELLEN, p. 79, Tijdschr. Ent. xxxv.
- Allotria amica*, Hb., = (*lineella*, Gr.) ; BUTLER, p. 214, Ent. xxv.
- Ammoconia vetula*, var. *mediorhenana* ; FUCHS, p. 91, JB. nass. Ver. xlv.
- Amyna selenampha*, Gn., = (*paradoxa*, Saalm.) ; SNELLEN, p. 75, Tijdschr. Ent. xxxv.
- Anarta besta*, Greenland, SKINNER, P. Ac. Philad. 1892, p. 158, n. sp.
- Anartomorpha*, n. g., near *Anarta*, for *A. potanini*, n. sp. (Chiu?), pl. ii, fig. 8 ; ALPHERAKY, p. 39, Romanoff Mem. vi.
- Anchocelis litura*, food-plant ; JEFFREY, Ent. M. M. xxviii, p. 47.
- Anophia leucomelas*, L., = (*discistriga* and *trispilosa*, Saalm.) ; SNELLEN, p. 80, Tijdschr. Ent. xxxv.
- Anthaxia*, n. g., near *Chloantha*, for *A. pretiosa*, n. sp., Amurland, pl. vii, fig. 6 ; STAUDINGER, p. 448, Romanoff Mem. vi.
- Anthophila* : note on use of the name ; SNELLEN, p. 78, Tijdschr. Ent. xxxv.
- Apamea dumerilii*, varr. described ; STAUDINGER, p. 284, Deutsche e. Z. Lep. iv.

- Aplectoides caliginea*, figured, pl. vi, fig. 9, Romanoff Mem. vi.
- Aporophyla haasi*, Spain, STAUDINGER, p. 280, Deutsche e. Z. Lep. iv, n. sp.
- Argiva* and *Patula*, peculiarity of neurulation and glandular organs; HAMPSON, P. Z. S. 1892, p. 193.
- Arzama*: the name is more recent than *Bellura*, Wlk.; SMITH, p. 135, Canad. Ent. xxiv.
- Audea*: *Phoberia catocala*, Feld., referred to, p. 214, *A. bipunctata*, Wlk., = (*P. fatua*, Feld.), p. 213; BUTLER, Ent. xxv.
- Aventina*, n. g., p. 605 (? same as *Aventiola*), for *A. costimacula*, pl. xiv, fig. 4, p. 604, *solitaria*, fig. 5, p. 605, n. spp., Amurland; STAUDINGER, Romanoff Mem. vi.
- Aventiola*, n. g., near *Aventia*, for *A. maculifera*, n. sp., Amurland, pl. xiv, fig. 3; STAUDINGER, p. 602, Romanoff Mem. vi.
- Bagada* (sub *Acontia*) *plumbata*, Butl., = (*Marimatha freda*, Sw.), *B. spicea*, Gn. = (*Acontia firina*, Sw.); BUTLER, p. 90, Ent. xxv.
- Bellura gortynoides*, Wlk., = (*Arzama densa*); SMITH, p. 135, Canad. Ent. xxiv.
- Berresa*, Wlk., = (*Pterætholix*); BUTLER, p. 11, Ent. xxv.
- Boletobia cognata*, Amurland, STAUDINGER, p. 606, Romanoff Mem. vi, n. sp.
- Brada curvilinea*, Amurland; STAUDINGER, p. 553, pl. ix, fig. 12, Romanoff Mem. v.
- Bryophila tabora*, Aintab, p. 264, *paulina*, Jerusalem, p. 265, STAUDINGER, Deutsche e. Z. Lep. iv; *B. roderi*, Kurdistan, STANDFUSS, p. 665, pl. xv, fig. 4, Romanoff Mem. vi; *B. glauca*, p. 394, pl. v, fig. 8, *albonotata*, fig. 9, p. 396, *B. ? (Bryomoia) melachlora*, fig. 10, p. 397, Amurland, STAUDINGER, t. c.; *B. confucii*, p. 19, pl. i, fig. 8, *chloromixta*, p. 21, pl. ii, fig. 1, China, ALPHÉRAKY, t. c.: n. spp.
- Bryophilina*, n. g., near *Bryophila*, for *B. blandula*, n. sp., Amurland, pl. v, fig. 11; STAUDINGER, p. 398, Romanoff Mem. vi.
- Calliodes pretiosissima*, E. Africa, HOLLAND, Ent. xxv (Supp.), p. 94, n. sp.
- Calocampa brucei*, Colorado, SMITH, p. 252, Ent. News, iii, n. sp.
- Calyminia*, Hb., = (*Elyptron*, Saalm.); SNELLEN, p. 76, Tijdschr. Ent. xxxv. *C. picta*, pl. x, fig. 2, *moderata*, fig. 1, figured, Romanoff Mem. vi.
- Capnodes trifasciata*, Moore, = (*alboguttata*, Heyd.); SNELLEN, Tijdschr. Ent. xxxv, p. 82.
- Caradrina vicina*, varr. described; STAUDINGER, p. 294, Deutsche e. Z. Lep. iv. *C. funesta*, fig. 10, *maurella*, fig. 9, *illustrata*, fig. 11, figured, pl. viii, Romanoff Mem. vi.
- C. (Amphidrina) agrotina*, Amasia, p. 293, pl. iii, fig. 11, STAUDINGER, Deutsche e. Z. Lep. iv, n. sp.
- Catocala*: synonymic notes; BUTLER, Ent. xxv, pp. 283-285: synonymy of some N. American; HULST, p. 74, Canad. Ent. xxiv, and FRENCH, p. 19, t. c. *C. lineella* and *alabamæ*, synonymical note; GROTE, p. 155, Canad. Ent. xxiv. *C. deuteronympha*, pl. xii, fig. 2, *agitatrix*, fig. 3,

- serenides*, pl. xi, fig. 6, *dærriesi*, fig. 8, *greyi*, fig. 7, *streckeri*, fig. 9, figured, Romanoff Mem. vi. *C. elocata*, n. var. *locata*; STAUDINGER, p. 327, Deutsche e. Z. Lep. iv. *C. illecta*, preparatory stages; FRENCH, p. 307, Canad. Ent. xxiv. *C. stretchii*, early stages; FRENCH, p. 229, t. c. *C. electa*, *sponsa*, colour variation of larvæ; POULTON, Tr. E. Soc. 1892, p. 300. *C. nupta* and *fraxini*, variation in colour of larvæ; GOULD, pp. 219-234, Tr. E. Soc. 1892.
- C. remissa*, p. 328, pl. iv, fig. 10, *contemnenda*, p. 329, fig. 11, *æstimabilis*, p. 330, fig. 12, Turkestan, STAUDINGER, Deutsche e. Z. Lep. iv; *C. hetæra*, p. 592, pl. xii, fig. 4, *eminens*, fig. 5, p. 594, Amurland, STAUDINGER, Romanoff Mem. vi: n. spp.
- Chamyris cerintha*, full-grown larva; BEUTENMÜLLER, p. 78, Bull. Am. Mus. iv.
- Chara*, n. g., near *Thalpochares*, for *C. albosignata*, pl. xiv, fig. 2, p. 559, *bimaculata*, p. 561, n. spp., Amurland; STAUDINGER, Romanoff Mem. vi.
- Chariclea erubescens*, Amurland, GRAESER, p. 229, Berl. Ent. Zeit. xxxvii; *C. hedemanni*, Amurland, STAUDINGER, p. 552, Romanoff Mem. vi; *C. sanguinata*, Brisbane, LUCAS, p. 254, P. Linn. Soc. N.S.W. (2) vii: n. spp.
- Charidea v-brunneum*, Gn., = (*Appana rosacea*, Saalm.); SNELLEN, p. 76, Tijdschr. Ent. xxxv.
- Chobatia discalis*, Wlk., = (*Erastria concludens*, Wlk.); BUTLER, p. 65, Ent. xxv.
- Cirrædia werampelina*, varr. described; STAUDINGER, p. 299, Deutsche e. Z. Lep. iv.
- Clavipalpus*, n. g. for *Teniocampa aurariæ*, Oberth.; STAUDINGER, p. 499, Romanoff Mem. vi.
- Cleophana pauli*, Jerusalem, STAUDINGER, p. 306, Deutsche e. Z. Lep. iv, n. sp.
- Cocytodes modesta* and *polygrapha*, synonymy; BUTLER, Ent. xxv, p. 212.
- Copipanolis borealis*, *fasciata*, N. America, SMITH, p. 62, P. U. S. Nat. Mus. xv, n. spp.
- Cosmia trapezoides*, figured, pl. ix, fig. 7, Romanoff Mem. vi.
- C. regina*, Amasia, STAUDINGER, p. 297, Deutsche e. Z. Lep. iv, n. sp.
- Cucullia maculosa*, figured, pl. x, fig. 4, Romanoff Mem. vi. *C. cyrtana*, figured; MABILLE & VUILLOT, pl. xi, fig. 3, Nov. Lep. Monograph of the N. American species; SMITH, P. U. S. Nat. Mus. xv, pp. 33-52, pl. ii.
- C. similis*, *obscurior*, p. 41, *dorsalis*, p. 47, *bistriga*, p. 48, *cinderella*, p. 49, N. America, SMITH, P. U. S. Nat. Mus. xv; *C. umbristriga*, Central Asia, ALPHÉRAKY, p. 452, Hor. Ent. Ross. xxvi; *C. sublutea*, p. 312, *hemidiaphana*, p. 313, Central Asia, GRAESER, Berl. Ent. Zeit. xxxvii; *C. distinguenda*, Siberia, STAUDINGER, p. 368, pl. iii, fig. 7, Deutsche e. Z. Lep. v: n. spp.
- Curvatula*, n. g., near *Aventia*, for *C. palliostata*, n. sp., Amurland, pl. xii, fig. 6; STAUDINGER, p. 601, Romanoff Mem. vi.

- Dasygaster hollandiæ*, Gn., = (*leucanioides*, Gn., and *Graphiphora facilis*, Wlk.), *D. epundoides*, Gn., = (*punctivena*, Wlk.); BUTLER, p. 10, Ent. xxv.
- Dasyptolia templi*, n. var. *caflischli*; RÜHL, p. 170, Soc. Ent. vi.
- D. ferdinandi*, Stilsfer Joch, RÜHL, Soc. Ent. vi, p. 169; *D. pagodæ*, *gerbillus*, Central Asia, ALPHÉRAKY, p. 452, Hor. Ent. Ross. xxvi; *D. ? fani*, Amurland, STAUDINGER, p. 522, pl. ix, fig. 10, Romanoff Mem. vi : n. spp.
- Deva*, *Polychrysis*, and *Plusia*, note on the confusion as to these genera; their members mentioned; BUTLER, pp. 407 & 408, Ann. N. H. (f) ix.
- Dianthæcia filigrama*, n. var. *melanochroa*; STAUDINGER, p. 273, Deutsche e. Z. Lep. iv.
- D. musculina*, Malatia, STAUDINGER, p. 272, Deutsche e. Z. Lep. iv; *D. deliciosa*, *lurida*, Central Asia, ALPHÉRAKY, p. 446, Hor. Ent. Ross. xxvi : n. spp.
- Dicopis*: revision of the N. American; SMITH, P. U. S. Nat. Mus. xv, pp. 53 & 68. *D. viridescens*, Wlk., = (*muralis*, Grt.): *Psaphidia resumens*, Wlk., is the same; SMITH, p. 135, Canad. Ent. xxiv.
- Drasteria erichto*, note on; SLINGERLAND, Ent. News, iii, p. 63.
- Dryobota contermina*, Central Asia, GRAESER, p. 308, Berl. Ent. Zeit. xxxvii; *D. ? amurensis*, Ussuri, STAUDINGER, p. 432, pl. vii, fig. 5, Romanoff Mem. vi : n. spp.
- Dyschorista* (sub *Cerastis*) *prodeuns*, Wlk., = (*Teniocampa puerilis*, Grote); BUTLER, p. 10, Ent. xxv.
- D. conlecta*, Central Asia, GRAESER, p. 310, Berl. Ent. Zeit. xxxvii, n. sp.
- Eccopteroma*, n. g., for *Calymnia falcata*, Graeser; STAUDINGER, p. 506, Romanoff Mem. vi.
- Eicomorpha ? argillacea*, Amdo, ALPHÉRAKY, p. 445, Hor. Ent. Ross. xxvi, n. sp.
- Eliochræa chrysochlora*, Wlk., = (*Amphipyra laportei*, Feld.); BUTLER, Ent. xxv, p. 285 & 286.
- Epinecia subtilis*, pl. xi, fig. 4, *quadrivirgula*, fig. 5, figured; MABILLE & VUILLOT, Nov. Lep.
- Episema lederi*, varr. described; STAUDINGER, pp. 274–276, Deutsche e. Z. Lep. iv.
- Epunda muscosa*, Amasia, STAUDINGER, p. 281, Deutsche e. Z. Lep. iv, n. sp.
- Erastria wiskotti*, pl. xi, fig. 4, *numisma*, fig. 3, *distinguenda*, fig. 4, figured, Romanoff Mem. vi.
- E. staudingeri*, Kurdistan, STANDFUSS, p. 667, pl. xv, fig. 7, Romanoff Mem. vi, n. sp.
- Erebus odorata*, = (*marquesii*, Phil.); REED, p. 68, Act. Soc. Chili, i.
- Eriopus venus*, figured, pl. viii, fig. 6, Romanoff Mem. vi.
- Erygia apicalis*, numerous synonyms of; BUTLER, Ent. xxv, p. 213.
- Erythrophæa*, n. g. for *Chariclea ? eudoxia*, n. sp., Kashgar, pl. iv, fig. 9; STAUDINGER, p. 316, Deutsche e. Z. Lep. iv.

- Eublemma* (sub *Micra*) *hemirhoda*, Wlk., = (*Anthophila roseifascia*, Wlk.); BUTLER, Ent. xxv, p. 189.
- Eumestla* (sub *Thalpochares*) *patula*, Mor., = (*Tarache patruelis*, Gr., and *Anthophila flammicincta*, Wlk.); BUTLER, p. 189, Ent. xxv.
- Euplexia græseri*, Amurland, STAUDINGER, p. 462, Romanoff Mem. vi, n. sp.
- Eurhipia bowkeri*, Feld., = (*Eutelia exquisita*, Saalm.); SNELLEN, p. 78, Tijdschr. Ent. xxxv.
- E. adoratrix*, STAUDINGER, p. 308, Deutsche e. Z. Lep. iv, n. sp.
- Euromioia*, n. g. of doubtful position, for *E. mixta*, n. sp., Amurland, pl. xii, fig. 10; STAUDINGER, p. 632, Romanoff Mem. vi.
- Eutolype bombyciformis*, Ohio, SMITH, p. 59, P. U. S. Nat. Mus. xv, n. sp.
- Fodina ostorius*, figured; SCOTT, Austral. Lep. ii, pl. xviii.
- F. gloriosa*, Queensland, LUCAS, p. 304, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Frura* (sub *Xanthodes*) *parvula*, Wlk., = (*georgica*, Gr.); BUTLER, p. 91, Ent. xxv.
- Gonitis editrix*, Gn., = (*fractifera* and *cosmioides*, Wlk.), *G. sabulifera*, Gn., = (*involuta*, var., G., and *basalis*, Wlk., *Tiridata colligata*, Wlk., and *G. propinqua*, Butl.); BUTLER, p. 11, Ent. xxv. *G. fulvida*, Gn., complex synonymy; BUTLER, *t. c.*, p. 12.
- Grammesia bifasciata*, figured, pl. viii, fig. 8, Romanoff Mem. vi.
- Grammodes excellens*, p. 257, *pulcherrima*, p. 258, *divaricata*, p. 259, *pallens*, p. 260, Brisbane; LUCAS, P. Linn. Soc. N.S.W. (2) vii, n. spp.
- Graphiphora lichenodes*, E. Siberia, GRAESER, p. 216, Berl. Ent. Zeit. xxxvii, n. sp.
- Grumia*, n. g., near *Heliothis* for *G. flora*, n. sp., Amdo; ALPHÉRAKY, p. 453, Hor. Ent. Ross. xxvi.
- Hadena monoglypha*, n. var. ? *polyglypha*; STAUDINGER, p. 286, Deutsche e. Z. Lep. iv. *H. fraudulenta*, pl. viii, fig. 5, *dorriesi*, fig. 4, figured; Romanoff Mem. vi.
- H. subaquila*, p. 224, *radicosa*, p. 225, E. Siberia, GRAESER, Berl. Ent. Zeit. xxxvii, n. spp.
- Hadjina*, n. g. (*Segetia*) for *H. lutosa*, n. sp., Asia Minor; STAUDINGER, p. 286, Deutsche e. Z. Lep. iv.
- Hamodes simplicia*, W. Africa, WEYMER, p. 116, S. E. Z. liii, n. sp.
- Heliocheilus foveolatus*, figured, pl. x, fig. 3, Romanoff Mem. vi.
- Heliphobus scillæ*, ♀ noticed; CHRÉTIEN, Le Nat. 1892, p. 7.
- H. hirsutus*, Asia Minor, p. 277. *H. ? discrepans*, Jerusalem, p. 278, STAUDINGER, Deutsche e. Z. Lep. iv; *H. grumi*, *anachoretoides*, Central Asia, ALPHÉRAKY, p. 447, Hor. Ent. Ross. xxvi : n. spp.
- Heliothis armigera*, notes on; MALLY, Bull. Dep. Agric. Ent. xxvi, pp. 45-56.
- Hepatica*, n. g. of doubtful position, for *H. anceps*, n. sp., Amurland, pl. xii, fig. 11; STAUDINGER, p. 634, Romanoff Mem. vi.
- Heræma*, n. g. for *Pachnobia mandschurica*, Graes.; STAUDINGER, p. 501, Romanoff Mem. vi.

- Hiptelia lorezi*, note on ; LOREZ, p. 370, MT. Schw. ent. Ges. viii.
- Holocryptis*, n. g., *Plusiides*, p. 256, for *H. phasianura*, n. sp., Brisbane, p. 257 ; LUCAS, P. Linn. Soc. N.S.W. (2) vii.
- Hydrilla* ? *ornata*, Margelan, STAUDINGER, p. 296, Deutsche e. Z. Lep. iv, n. sp.
- Hydræcia burkhana*, Amdo, ALPHÉRAKY, p. 450, Hor. Ent. Ross. xxvi ;  
*H. medialis*, *senilis*, *unimoda*, Colorado, SMITH, p. 257, Ent. News, iii : n. spp.
- Hypetra* : characters and composition of, and allies ; BUTLER, Ann. N. H. (6) x, pp. 297-300.
- Hypocala* : revision of the genus ; BUTLER, Ann. N. H. (6) x, pp. 17-21.  
*H. deflorata*, figured, pl. xii, fig. 1, Romanoff Mem. vi.
- H. moorei*, *clarissima*, Ceylon, BUTLER, Ann. N. H. (6) x, p. 21, n. spp.
- Hypsophila grumi*, Central Asia, ALPHÉRAKY, p. 454, Hor. Ent. Ross. xxvi ; *H. daishi*, China, ALPHÉRAKY, p. 43, pl. ii, fig. 9, Romanoff Mem. vi : n. spp.
- Isochlora albivitta*, *grumi*, Central Asia, ALPHÉRAKY, p. 448, Hor. Ent. Ross. xxvi, n. spp.
- Janthinea divalis*, Malatia, STAUDINGER, p. 312, Deutsche e. Z. Lep. iv, n. sp.
- Kuldscha oberthuri*, Amdo, ALPHÉRAKY, p. 458, Hor. Ent. Ross. xxvi, n. sp.
- Lasionycta*, n. g. for *Phlogophora skrælingia*, H. Sch. ; AURIVILLIUS, p. 285, Ent. Tidskr. xiii.
- Leocyma cilia*, pl. x, fig. 10, *borussica*, fig. 11, figured, Romanoff Mem. vi.
- Leucania impuncta*, Amurland, STAUDINGER, p. 475, Romanoff Mem. vi, n. sp.
- Leucanitis* : note on structure of legs of ; ALPHÉRAKY, p. 47, Romanoff Mem. vi ; *L. hedemanni*, Stgr., figured, pl. xi, fig. 5, *t. c.*
- L. scolopax*, Central Asia, ALPHÉRAKY, p. 454, Hor. Ent. Ross. xxvi, n. sp.
- Leucocosmia ceres*, = (*Caradrina euthusa*, Hamp.) ; BUTLER, p. 10, Ent. xxv.
- Lithacodia bellicula*, Hb., = (*Hydrelia semichalcea*, Wlk.) ; BUTLER, p. 65, Ent. xxv.
- Lithocampa ramulosa*, figure ; Romanoff Mem. vi, pl. x, fig. 3.
- Lithophasia*, n. g. (*Lithocampa*), for *L. venosula*, n. sp., Beyrout, pl. iv, fig. 3 ; STAUDINGER, p. 305, Deutsche e. Z. Lep. iv.
- Luperina ditata*, Brisbane, LUCAS, p. 254, P. Linn. Soc. N.S.W. (2) vii ;  
*L. ? malitiosa*, Centr. Asia, ALPHÉRAKY, p. 448, Hor. Ent. Ross. xxvi : n. spp.
- Mamestra* : synonymical notes on Smith's revision ; GROTE, pp. 187-189, Canad. Ent. xxiv. *M. legitima*, larval stages ; BEUTENMÜLLER, p. 77, Bull. Am. Mus. iv. *M. adjuncta*, pl. vi, fig. 8, *mortua*, pl. viii, fig. 1, *declinans*, fig. 2, *incommoda*, fig. 3, figured ; STAUDINGER, Romanoff Mem. vi.

- M. suavis*, Amurland, STAUDINGER, p. 428, pl. vii, fig. 4, Romanoff Mem. vi ; *M. tancrei*, p. 305, *longicornis*, p. 306, Central Asia, GRAESER, Berl. Ent. Zeit. xxxvii ; *M. satanella*, p. 445, *texturata*, p. 446, Centr. Asia, ALPHÉRAKY, Hor. Ent. Ross. xxvi ; *M. fuscolutea*, Colorado, SMITH, p. 250, Ent. News, iii : n. spp.
- Melipotis* : revision of ; BUTLER, Ann. N. H. (6) x, pp. 315-327.
- M. walkeri*, Callao, p. 325, *yerburyi*, Aden, p. 327, BUTLER, Ann. N. H. (6) x, n. spp.
- Mesotrosta*? *incerta*, Amurland, STAUDINGER, p. 572, Romanoff Mem. vi, n. sp.
- Metalopha*, n. g. for *M. plusina*, N. Persia, p. 313, pl. iv, fig. 8, *gloriosa*, Syria, p. 314, fig. 7, n. spp. ; STAUDINGER, Deutsche e. Z. Lep. iv.
- Metecia cornifrons*, figured, pl. i, fig. 2 : described, pp. 15-17 ; SNELLEN, Tijdschr. Ent. xxxv.
- Metopoceras*? *beata*, Taurus, STAUDINGER, p. 274, Deutsche e. Z. Lep. iv, n. sp.
- Metoponia pallida*, p. 323, *gratiosa*, p. 325, *nubila*, p. 326, Asia Minor, STAUDINGER, Deutsche e. Z. Lep. iv, n. spp.
- Micra rosita*, Gn., = (*derogata*, Wlk.) ; BUTLER, p. 141, Ent. xxv.
- Miselia oxyacanthæ*, varr. described ; STAUDINGER, p. 283, Deutsche e. Z. Lep. iv.
- M. sabulosa*, E. Siberia, GRAESER, p. 222, Berl. Ent. Zeit. xxxvii, n. sp.
- Moma virens*, Butl., figured, pl. vii, fig. 1 ; Romanoff Mem. vi.
- Monostola*, n. g., near *Gortyna*, for *M. asiatica*, n. sp., Ganssu, pl. ii, fig. 7 ; ALPHÉRAKY, p. 37, Romanoff Mem. vi.
- Morrisonia* : the N. American species revised ; SMITH, pp. 78-86, P. U. S. Nat. Mus. xv.
- Mythimna pectinata*, Central Asia, ALPHÉRAKY, p. 450, Hor. Ent. Ross. xxvi, n. sp.
- Nipista* (sub *Diastema*) *tigris*, Gn., = (*lineata*, Wlk.) ; BUTLER, p. 11, Ent. xxv.
- Noctua variicollis*, figured ; MABILLE & VUILLOT, pl. xi, fig. 6, Nov. Lep.
- N. flavotincta*, N. America, SMITH, p. 252, Ent. News, iii, n. sp.
- Nonagria phragmiticola*, pl. ix, fig. 2, p. 469, *impudica*, fig. 3, p. 470, Amurland, STAUDINGER, Romanoff Mem. vi, n. spp.
- Ogovia*, n. g., *Hypopyrides*, for *O. tavetensis*, n. sp., E. Africa ; HOLLAND, Ent. xxv (Supp.), p. 95.
- Omorphina*, n. g., near *Heliaca*, for *O. aurantiaca*, n. sp., Amdo, ALPHÉRAKY, p. 452, Hor. Ent. Ross. xxvi.
- Oncocnemis nigrocaput*, p. 250, *extranea*, p. 251, N. America, SMITH, Ent. News, iii, n. spp.
- Ophideres princeps*, Gn., is not *princeps*, Boisd., and should be called *Halastus intricatus* ; BUTLER, p. 375, Ann. N. H. (6) ix.
- Ophiodes parcemacula*, Queensland, LUCAS, p. 304, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Ophisma pretoriae*, Transvaal, DISTANT, p. 239, pl. ii, fig. 7, Naturalist Transvaal, n. sp.

- Ophiusa myops, frontina, senex*, figured ; SCOTT, Austral. Lep. ii, pl. xviii.  
*Oræsia hartmanni*, Möschl., = (*cuprea*, Saalm.) ; SNELLEN, p. 79, Tijdschr. Ent. xxxv.
- Orrhodia acutula*, Jerusalem, STAUDINGER, p. 302, Deutsche e. Z. Lep. iv ; *O. ciliata*, Amurland, STAUDINGER, p. 516, Romanoff Mem. vi : n. spp.
- Orthosia kindermanni*, n. var., *pauli* ; STAUDINGER, p. 301, Deutsche e. Z. Lep. iv. *O. (sub Apamea) reciproca*, Wlk., = (*breviuscula*, Wlk.) ; BUTLER, p. 10, Ent. xxv.
- O. scabra*, Jerusalem, STAUDINGER, p. 299, Deutsche e. Z. Lep. iv, n. sp.
- Ozarba punctigera*, Wlk., = (*Grammodes excavata*, Wlk.) ; BUTLER, p. 141, Ent. xxv.
- Pachetra leucophæa*, notes on rearing ; JEFFREY, Ent. M. M. xxviii, p. 45.
- Pachydasyss*, n. g., *Callopietriide*, p. 125, for *Eutelia consentanea*, Wlk., pl. vi, fig. 5 ; BUTLER, P. Z. S. 1892.
- Palindia* : synonymy of species of ; BUTLER, Ent. xxv, pp. 189-191.
- Panopoda carneicosta* and *rufimargo*, larval stages ; BEUTENMÜLLER, pp. 68 & 69, Bull. Am. Mus. iv.
- Panthauma*, n. g., near *Panthea*, for *P. egregia*, n. sp., Amurland, pl. vii, fig. 2 ; STAUDINGER, p. 404, Romanoff Mem. vi.
- Paragona*, n. g., for *Acidalia multisignata*, Chr., figured, pl. xii, fig. 9 ; STAUDINGER, p. 557, Romanoff Mem. vi.
- Perigea conducta*, = (*Caradrina consocia*, Wlk.) ; BUTLER, p. 11, Ent. xxv. *P. xanthioides*, larval stages ; BEUTENMÜLLER, p. 69, Bull. Am. Mus. iv.
- Phalacra*, n. g., for *Perigea gemella*, Leech ; STAUDINGER, p. 568, Romanoff Mem. vi.
- Phoebophilus* ? *lenis*, Jerusalem, STAUDINGER, p. 279, Deutsche e. Z. Lep. iv, n. sp.
- Platydasys*, n. g., *Callopietriide*, for *P. pryeri*, n. sp., Borneo, pl. vi, fig. 6 ; BUTLER, p. 126, P. Z. S. 1892.
- Pleroma apposita*, N. America, SMITH, p. 252, Ent. News, iii, n. sp.
- Plotheia* : notes on its species ; BUTLER, Ent. xxv, p. 285.
- Plusia gammoides*, Bl., = (*chilensis*, Butl.) ; REED, p. 68, Act. Soc. Chili, i. *P. oxygramma*, Hb., note on ; SNELLEN, Tijdschr. Ent. xxxv, p. 18. *P. emichi*, n. var. *paulina* ; STAUDINGER, p. 310, Deutsche e. Z. Lep. iv. *P. emichi*, n. var. *dorsiflava* ; STANDFUSS, p. 666, pl. xv, fig. 6, Romanoff Mem. vi. *P. gamma*, var. of larva ; PORRITT, Ent. M. M. xxviii, p. 255. *P. moneta*, habits ; FALLOU, p. clxv, Bull. Soc. Ent. Fr. lxi. *P. aurata*, pl. x, fig. 6, *splendida*, fig. 8, *adscripta*, fig. 7, figured, Romanoff Mem. vi.
- P. augusta*, Aintab, p. 309, *maria*, Jerusalem, p. 311, STAUDINGER, Deutsche e. Z. Lep. iv ; *P. inconspicua*, Central Asia, GRAESER, p. 315, Berl. Ent. Zeit. xxxvii ; *P. agnata*, Amurland, STAUDINGER, p. 547, Romanoff Mem. vi : n. spp.
- Plusilla*, n. g., near *Telesilla*, for *P. rosalia*, n. sp., Amurland, pl. ix, fig. 11 ; STAUDINGER, p. 533, Romanoff Mem. vi.

- Pæcilogramma*, n. g., near *Gnamptocera*, for *P. picatum*, n. sp., Borneo, pl. vi, fig. 4; BUTLER, p. 126, P. Z. S. 1892.
- Polia rebecca*, Jerusalem, STAUDINGER, p. 282, Deutsche e. Z. Lep. iv;  
*P. mirafloresa*, Loja, DOGNIN, p. 185, Le Nat. 1892 : n. spp.
- Præstibbia*, n. g. for *P. armeniaca*, n. sp., Amasia; STAUDINGER, p. 288, Deutsche e. Z. Lep. iv.
- Premusia intrahens*, Wlk., = (*Anophia smaragdaria*, Wlk., and *Dysedia zibellina*, Feld.); BUTLER, Ent. xxv, p. 213.
- Prionoptera serraoides*, Loja, DOGNIN, p. 85, Le Nat. 1892, n. sp.
- Pseudathyrima*, n. g. for part of *Hypatra*; BUTLER, p. 299, Ann. N. H. (6) x.
- Pseudohadena armata*, figured, pl. ii, fig. 6, description amended, p. 35; ALPHÉRAKY, Romanoff Mem. vi.
- P. pugnax*, Central Asia, ALPHÉRAKY, p. 449, Hor. Ent. Ross. xxvi, n. sp.
- Pseudomicra*, n. g. for *Anthophila marginalis* and *semipurpurea*, Wlk.; BUTLER, p. 91, Ent. xxv.
- Raddea*, n. g., near *Mesogona*, for *R. digna*, n. sp., Amdo; ALPHÉRAKY, p. 450, Hor. Ent. Ross. xxvi.
- Rancora*, n. g., for *R. strigata*, n. sp., N. America; SMITH, p. 253, Ent. News, iii.
- Rusidrina*, n. g., near *Caradrina*, for *R. rasdolnia*, n. sp., Amurland, pl. vii, fig. 9; STAUDINGER, p. 491, Romanoff Mem. vi.
- Segetia albopicta*, Amurland, GRAESER, p. 226, Berl. Ent. Zeit. xxxvii;  
*S. ? mandarina*, Amurland, STAUDINGER, p. 482, pl. ix, fig. 4, Romanoff Mem. vi : n. spp.
- Sidemia*, n. g., near *Trigonophora*, for *S. snelleni*, n. sp., Amurland, pl. vii, fig. 8; STAUDINGER, p. 459, Romanoff Mem. vi.
- Sonagara scitaria*, Wlk., = (*Timandra cancellata*, Wlk.); STAUDINGER, p. 636, Romanoff Mem. vi.
- Sphragifera*, n. g., ? near *Leocyma*, p. 555, for *Anthæcia sigillata*, Mén.; STAUDINGER, Romanoff Mem. vi.
- Spinipalpa*, n. g., near *Agrotis*, p. 444, for *S. maculata*, n. sp., Amdo, p. 445; ALPHÉRAKY, Hor. Ent. Ross. xxvi.
- Stilbia anomala*, varr. described; STAUDINGER, p. 289, Deutsche e. Z. Lep. iv.
- Stilbina*, n. g., for *S. hypænides*, n. sp., Beyrout, pl. iii, fig. 12; STAUDINGER, Deutsche e. Z. Lep. iv.
- Tæniocampa lata*, pl. ix, fig. 5, p. 496, *stenoptera*, p. 497, fig. 6, Amurland, STAUDINGER, Romanoff Mem. vi, n. spp.
- Tapinostola* ? (*Cænagria*) *nana*, Amurland, STAUDINGER, p. 473, Romanoff Mem. vi, n. sp.
- Tarache*, synonymy of various species; BUTLER, Ent. xxv, pp. 61-63.
- Thalpochares*: notes on the composition of the genus and the species belonging to allied forms of *Eublemmidæ*; BUTLER, Ent. xxv, pp. 91-93. *T. albida*, varr. described; STAUDINGER, p. 317, Deutsche e. Z. Lep. iv. *T. bella*, figured, pl. xi, fig. 1; STAUDINGER, Romanoff Mem. vi.

- T. suppuncta*, p. 319, *suppura*, p. 320, *substrigula*, p. 321, *straminea*, p. 322, Asia Minor, STAUDINGER, Deutsche e. Z. Lep. iv; *T. subvenata*, Tunis, STAUDINGER, p. 288, *op. cit.* v; *T. pulvinariae*, Australia, OLLIFF, p. 179, Agric. Gaz. N.S.W. iii: n. spp.
- Toxocampa emaculata*, E. Siberia, GRAESER, p. 231, Berl. Ent. Zeit. xxxvii, n. sp.
- Trachea similis*, Amurland; STAUDINGER, p. 456, pl. ix, fig. 1, Romanoff Mem. iv, n. sp.
- Trigonophora grumi*, Central Asia, ALPHÉRAKY, p. 449, Hor. Ent. Ross. xxvi, n. sp.
- Ulochlena superba*, Central Asia, ALPHÉRAKY, p. 447, Hor. Ent. Ross. xxvi, n. sp.
- Valeria* ? *sauberi*, E. Siberia, GRAESER, p. 223, Berl. Ent. Zeit. xxxvii, n. sp.
- Varnia fenestrata*, Laos, POUJADE, p. 270, pl. xi, fig. 6, N. Arch. Mus. Paris (3) iii, n. sp.
- Virgo*, n. g. for *Nonagria amœna*, Stgr., figured, pl. viii, fig. 7; STAUDINGER, p. 467, Romanoff Mem. vi.
- Xanthia divergens*, Butl., figured, pl. ix, fig. 8, Romanoff Mem. vi.
- Xylina ledereri*, Rhodus, STAUDINGER, p. 304, Deutsche e. Z. Lep. iv; *X. brachyptera*, Amurland, STAUDINGER, p. 520, pl. ix, fig. 9, Romanoff Mem. vi: n. spp.
- Xylomiges*: the N. American species revised; SMITH, pp. 65-78, pl. iii, P. U. S. Nat. Mus. xii.
- X. peritalis*, p. 69, *ochracea*, p. 75, N. America; SMITH, P. U. S. Nat. Mus. xv, n. spp.
- Xylomoia*, n. g., near *Chloantha*, for *X. separata*, n. sp., Amurland, pl. xii, fig. 8; STAUDINGER, p. 451, Romanoff Mem. viii.
- Zalissa*, Wlk., referred to *Agaristidae*, = (*Seudyra*, Stretch.); BUTLER, Ent. xxv, p. 214.

## DELTOIDIDÆ.

- [*Cf.* ALPHÉRAKY (779), BUTLER (143), DISTANT (216), LUCAS (569), POUJADE (702), STAUDINGER (779, 886).]
- Bocana flavopunctalis*, Laos, POUJADE, p. 275, pl. xi, fig. 10, N. Arch. Mus. Paris (3) iii, n. sp.
- Bomolocha rhombalis*, figured, pl. ii, fig. 10, Romanoff Mem. vi.
- B. bipartita*, Amurland, STAUDINGER, p. 625, pl. xiv, fig. 12, Romanoff Mem. vi, n. sp.
- Epizeuxis ethiops*, Transvaal, DISTANT, p. 239, pl. ii, fig. 2, Naturalist Transvaal, n. sp.
- Gynæphila*, n. g., near *Hyphenodes*, for *G. maculifera*, n. sp., Amurland, pl. xiv, fig. 13; STAUDINGER, p. 629, Romanoff Mem. vi.
- Helia curvipalpalis*, Butl., = (*quadra*, Graes.); STAUDINGER, p. 608, Romanoff Mem. vi.
- Herminia semicircularis*, Brisbane, LUCAS, p. 260, P. Linn. Soc. N.S.W. (2) vii, n. sp.

- Hollandia*, n. g., p. 295, for *H. sigillata*, n. sp., W. Africa, p. 296 ; BUTLER, Ann. N. H. (6) x.
- Hyphen conspersalis*, figured, pl. xiii, fig. 10, Romanoff Mem. vi ; *H. ravalis*, varr. described ; STAUDINGER, p. 334, Deutsche e. Z. Lep. iv.
- H. mardinalis*, Asia Minor, STAUDINGER, p. 336, Deutsche e. Z. Lep. iv, n. sp.
- Nodaria amurensis*, figured, pl. xiii, fig. 1, Romanoff Mem. vi.
- Pangrapta marmorata*, pl. xiii, fig. 5, *incisa*, fig. 6, *flavomacula*, fig. 7, *suaveola*, fig. 8, *costemacula*, fig. 9, figured, Romanoff Mem. vi.
- Pangrapta griseola*, Amurland, STAUDINGER, p. 620, pl. xiv, fig. 11, Romanoff Mem. vi, n. sp.
- Pechipogon ? grandis*, China, ALPHÉRAKY, p. 49, pl. ii, fig. 11, Romanoff Mem. vi, n. sp.
- Rivula unctalis*, Amurland, STAUDINGER, p. 631, Romanoff Mem. vi, n. sp.
- Zanclognatha fumosa*, pl. xiii, fig. 2, *robiginosa*, fig. 3, *bistrigata*, fig. 4, figured, Romanoff Mem. vi.
- Z. cristulalis*, p. 610, pl. xiv, fig. 7, *violacealis*, fig. 6, p. 612, *umbrosalis*, fig. 8, p. 613, *Z. ? helialis*, fig. 9, p. 615, *obliqua*, fig. 10, p. 616, Amurland, STAUDINGER, Romanoff Mem. vi, n. spp.

## GEOMETRIDÆ.

[Cf. ALPHÉRAKY (4, 779), BUTLER (141), DISTANT (216), DOGNIN (220), DRUCE (225, 347), FUCHS (313), GRAESER (356, 357), GUMPPENBERG (380), HEYLAERTS (403), HOLLAND (408), KLEMENSIEWICZ (499), LOWER (565), LUCAS (568, 569), MEYRICK (603, 604, 605), POUJADE (702), RÖBER (767), SKINNER & MENGEL (850), STANDFUSS (779), STAUDINGER, (886, 887, 890, 891), STEINERT (897), SWINHÖE (909), THIERRY-MIEG (923), WEYMER (1003).]

Classification of the *Geometrinæ* of Europe ; they are divided into six families and 117 genera, of which the characters are given ; MEYRICK, Tr. E. Soc. 1892, pp. 53-140.

The classifications of Meyrick and Gumpfenberg discussed and criticised, many remarks on generic nomenclature ; REBEL, S. E. Z. liii, pp. 247-268.

Colour variation in larvæ ; POULTON (703).

*Abraxas khasiana*, Khasia Hills, SWINHÖE, p. 17, Tr. E. Soc. 1892 ; *A. subhyalinata*, Flores, RÖBER, p. 333, Tijdschr. Ent. xxxiv (fig. in xxxv) : n. spp.

*Achlora gaujonaria*, Ecuador, DOGNIN, p. 186, Le Nat. 1892, n. sp.

*Acidalia lumenaria*, Hb., = (*Zanclopteryx zincaria*, Gn.) ; SNELLEN, p. 20, Tijdschr. Ent. xxxv. *A. privata*, fig. 23, *calidata*, fig. 24, figured, pl. lii, Biol. Centr. Am. Heter. ii. *A. pallidata*, larva described ; HABICH, p. 161, S. E. Z. liii. *A. luridata*, metamorphoses ; REBEL, p. 518, Verh. z.-b. Wien, xlii.

- A. bicertaria*, Tunis, STAUDINGER, p. 290, Deutsche e. Z. Lep. v ; *A. subochraria*, Central Asia, p. 144, *fasciata*, Syria, p. 145, *striolata*, Beyrout, p. 146, pl. ii, fig. 5, *incisaria*, fig. 6, p. 147, Spain, *nocturna*, p. 148, *sartharia*, p. 149, *tristriata*, p. 150, *effeminata*, p. 151, Central Asia, *completa*, Algeria, p. 152, *lutulentaria*, Spain, p. 153, *grisescens*, p. 155, *annubiata*, p. 156, Central Asia, STAUDINGER, Deutsche e. Z. Lep. v ; *A. latelineata*, Central Asia, GRAESER, p. 316, Berl. Ent. Zeit. xxxvii ; *A. ? obrimo*, pl. lii, fig. 13, *A. cavana*, fig. 14, p. 117, *onca*, fig. 15, *celenna*, fig. 16, *A. ? enona*, fig. 17, *A. carna*, fig. 18, p. 118, *nursica*, fig. 19, *olmia*, fig. 20, p. 119, *cazecca*, fig. 21, *catenes*, fig. 22, p. 120, *A. ? numitoria*, fig. 25, *carmenta*, fig. 26, p. 121, *A. ? ocrisia*, fig. 27, *A. nycteis*, fig. 28, *odrussa*, fig. 29, p. 122, Central America, DRUCE, Biol. Centr. Am. Heter. ii ; *A. minuscula*, *nigroapicata*, Chiriqui, *virescens*, Colombia, *rubricolor*, *rubellula*, *nubicolor*, Cayenne, THIERRY-MIEG, p. 235, Le Nat. 1892 : n. spp.
- Acropteris luteopictata*, Laos, POUJADE, p. 274, pl. xi, fig. 9, N. Arch. Mus. Paris (3) iii, n. sp.
- Acrotomia muta*, pl. xlv, figs. 15 & 16, *polla*, figg. 17 & 18, *A. ? mucia*, figg. 19 & 20, p. 48, *A. minucia*, figg. 21 & 22, *A. ? boia*, fig. 23, *nisa*, fig. 24, p. 49, Central America ; DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Agathia codina*, pl. i, fig. 3, p. 7, *gemma*, p. 8, Khasia Hills, SWINHOE, Tr. E. Soc. 1892 ; *A. iodoides*, *distributa*, Queensland, LUCAS, p. 296, P. Linn. Soc. N.S.W. (2) vi : n. spp.
- Amelora*, n. g., *Selidosemideæ*, p. 646, for *A. goniota*, p. 647, *demistis*, p. 648, *amblopa*, p. 649, *catacris*, p. 650, *arotræa*, p. 651, n. spp., Australia ; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.
- Amphidasys betularia*, variation in colour of larva ; BATESON, p. 213, Tr. E. Soc. 1892. *A. superans*, Butl., referred to *Boarmia* ; GRAESER, p. 232, Berl. Ent. Zeit. xxxvii. *A. arnobia*, figured, pl. xlviii, fig. 4, Biol. Centr. Am. Heter. ii.
- Amphidasys matharma*, Central America, DRUCE, p. 71, pl. xlviii, figg. 5 & 6, Biol. Centr. Am. Heter. ii, n. sp.
- Anaitis mundata*, Beyrout, p. 216, *submundulata*, Taurus, p. 217, *musculata*, Asia Minor, pl. ii, fig. 19, p. 218, STAUDINGER, Deutsche e. Z. Lep. v, n. spp.
- Anaploides pistaciaria*, figured, pl. xlix, fig. 20, Biol. Centr. Am. Heter. ii.
- Anhibernia*, n. g. for *Hybernica* (*A.*) *orientalis*, n. sp., Syria ; STAUDINGER, p. 170, Deutsche e. Z. Lep. v.
- A. burætica*, Siberia, STAUDINGER, p. 376, pl. iii, fig. 8, Deutsche e. Z. Lep. v, n. sp.
- Anisodes lichenaria*, *intermixtaria*, Khasia Hills, SWINHOE, p. 8, Tr. E. Soc. 1892 ; *A. melitia*, pl. li, fig. 3, *caletra*, fig. 4, *carbina*, fig. 5, Central America, DRUCE, p. 104, Biol. Centr. Am. Heter. ii ; *A. melano-chrysus*, Loja, DOGNIN, p. 237, Le Nat. 1892 : n. spp.
- Anteia canescens*, Rockhampton, LUCAS, p. 300, P. Linn. Soc. N.S.W. (2) vi, n. sp.

- Anthyria*, n. g., p. 2, type *Hyria grataria*, Wlk., with *A. iole*, n. sp., Khasia Hills, p. 3, pl. i, fig. 7; SWINHOF, Tr. E. Soc. 1892.
- Anticypella*, n. g. for *gigantaria*, Stgr.; MEYRICK, p. 108, Tr. E. Soc. 1892.
- Aphrogeneia*, n. subg. of *Acidalia*; GUMPPENBERG, p. 257, N. Acta Ac. L.-C. Nat. cur. lviii.
- Apicia medusa*, pl. xlv, fig. 20, *atilla*, fig. 21, *mesada*, fig. 22, *melenda*, figg. 23 & 24, p. 39, *aurana*, fig. 25, *micca*, fig. 26, *atia*, fig. 27, *mera*, figg. 28 & 29, p. 40, *aurelia*, p. 41, pl. xlv, fig. 1, *megania*, p. 42, fig. 2, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Aporoctena*, n. g., *Selidosemidæ*, for *A. scierodes*, n. sp., Queensland; MEYRICK, p. 622, P. Linn. Soc. N.S.W. (2) vi.
- Artemidora*, n. g. for *maracandaria*, Ersch.; MEYRICK, p. 112, Tr. E. Soc. 1892.
- Artiora*, n. g. for *evonymaria*, Schiff.; MEYRICK, p. 114, Tr. E. Soc. 1892.
- Asellodes laternaria*, figured, pl. li, fig. 8, Biol. Centr. Am. Heter. ii.
- Aspilates curvaria*, Evers., figured, pl. iii, fig. 5, ♀ described, p. 70; ALPHÉRAKY, Romanoff Mem. vi.
- A. revocaria*, Beyrout, STAUDINGER, p. 203, pl. ii, fig. 16, Deutsche e. Z. Lep. v, n. sp.
- Asthena prasina*, Khasia Hills, SWINHOF, p. 13, pl. i, fig. 10, Tr. E. Soc. 1892; *A. pellucida*, Brisbane, LUCAS, p. 253, P. Linn. Soc. N.S.W. (2) vii; *A. carnana*, Mexico, pl. lii, figg. 10 & 11, *neclas*, Guatemala, p. 12, DRUCE, p. 115, Biol. Centr. Am. Heter. ii : n. spp.
- Astrapephora*, n. g., near *Ortholitha*, for *A. romanovi*, n. sp., Amdo, ALPHÉRAKY, p. 457, Hor. Ent. Ross. xxvi.
- Atomophora*, n. g., near *Lithostegæ*, p. 65, for *A. falsaria*, n. sp., Ganssu, ALPHÉRAKY, p. 66, Romanoff Mem. vi.
- Azelina terrenaria*, Loja, DOGNIN, p. 106, Le Nat. 1892; *A. attagena*, *barbarata*, *fortunata*, Ecuador, DOGNIN, p. 186, Le Nat. 1892; *A. contorta*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892; *A. asterodia*, pl. xlvii, figg. 8 & 9, *astapa*, figg. 10 & 11, p. 62, *melissa*, fig. 12, *metella*, fig. 13, *aurunca*, fig. 14, p. 63, *micca*, figg. 15 & 16, *rumina*, figg. 17 & 18, p. 64, Central America, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Bessophora*, n. g., = (*Ptychoptera*, Christoph.); MEYRICK, p. 63, Tr. E. Soc. 1892.
- Biston hirtarius*, n. var. *hanoviensis*; HEYMONS, p. 446, pl. xv, fig. 9, Berl. Ent. Zeit. xxxvi.
- Boarmia repandata*, n. var. *nobilis*; ALPHÉRAKY, p. 61, Romanoff Mem. vi.
- B. exustaria*, Siberia, STAUDINGER, p. 378, pl. iii, fig. 9, Deutsche e. Z. Lep. v; *B. nobilitaria*, p. 173, *variolaria*, p. 174, *subrepandata*, p. 175, Central Asia, STAUDINGER, Deutsche e. Z. Lep. v; *B. conjungens*, Amdo, ALPHÉRAKY, p. 456, Hor. Ent. Ross. xxvi; *B. rybakowi*, Ganssu, ALPHÉRAKY, p. 61, pl. iii, fig. 4, Romanoff Mem. vi; *B.*

- leucopterata*, Laos, POUJADE, p. 273, pl. xi, fig. 7, N. Arch. Mus. Paris (3) iii; *B. noctiluca*, pl. xlviii, fig. 7, *B. ? cabira*, fig. 8, p. 73, *B. nephulia*, fig. 10, p. 75, *brotes*, fig. 11, *nepia*, fig. 12, p. 76, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Boletobia robiginosa*, p. 332, pl. iv, fig. 13, *detersa*, p. 333, fig. 14, Asia Minor, STAUDINGER, Deutsche e. Z. Lep. iv, n. spp.
- Bonatea*, n. g., *Boarminæ*, for *Oxydia duciata*, Maassen, figured, pl. xlix, figg. 6 & 7; DRUCE, p. 82, Biol. Centr. Am. Heter. ii.
- Bronchelia subroraria*, p. xlix, fig. 1, *conjugaria*, fig. 4, *detexta*, fig. 3, figured, Biol. Centr. Am. Heter. ii.
- B. nasica*, Mexico, DRUCE, p. 81, pl. xlix, fig. 4, Biol. Centr. Am. Heter. ii, n. sp.
- Bryoptera pruna*, Loja, DOGNIN, p. 59, Le Nat. 1892; *B. (?) candara*, Panama, DRUCE, p. 80, pl. xlviii, fig. 26, Biol. Centr. Am. Heter. ii : n. spp.
- Byssodes appropriata*, figured, pl. 1, fig. 25, Biol. Centr. Am. Heter. ii.
- B. miletia*, fig. 27, *nævia*, fig. 26, p. 99, *nazada*, fig. 28, p. 100, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Caberodes axona*, pl. xlv, fig. 6, *messene*, fig. 7, Mexico, DRUCE, p. 53, Biol. Centr. Am. Heter. ii, n. spp.
- Calothysanis amaturaria*, preparatory stages; KEL LICOTT, Canad. Ent. xxiv, p. 242.
- Cambogia obada*, pl. lii, figg. 1 & 2, *numida*, fig. 3, p. 112, *occia*, fig. 4, *odatis*, fig. 5, *numeria*, fig. 6, p. 113, *nucula*, fig. 7, *cedon*, fig. 8, *C. ? necula*, fig. 9, p. 114, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Carphoxera ptelearia*, further notes on; RILEY, Ins. Life, v, p. 40.
- Chlenias melanoxystru*, p. 633, *zonæa*, p. 665, Australia, MEYRICK, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Cherodes clemitaria*, full-grown larva; BEUTENMÜLLER, p. 79, Bull. Am. Mus. iv.
- Chrysotenis*, n. g., for *filacearia*, H.-S.; MEYRICK, p. 86, Tr. E. Soc. 1892.
- Cidaria minorata*, larva described; HABICH, S. E. Z. liii, p. 160. *C. tetrica*, figured, pl. iii, fig. 11, Romanoff Mem. vi.
- C. inconsiderata*, Amasia, p. 226, *apiciata*, p. 227, *fidonaria*, p. 229, *alexandriaria*, p. 230, *interpositaria*, p. 231, *prepositaria*, p. 233, *postpositaria*, p. 234, Central Asia, *ignorata*, Caucasus, p. 235, *desperata*, p. 236, *antelataria*, p. 237, pl. ii, fig. 21, Central Asia, *numidiata*, Algeria, fig. 22, p. 239, *viduata*, Central Asia, p. 241, *sintenisi*, Asia Minor, p. 242, *mærens*, p. 245, *rogata*, p. 248, *rejectaria*, p. 249, Central Asia, STAUDINGER, Deutsche e. Z. Lep. v; *C. semenovi*, p. 458, *eccentricata*, with var. *virginea*, p. 459, Amdo, ALPHÉRAKY, Hor. Ent. Ross. xxvi; *C. tima*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892; *C. cinereolimitata*, Colombia, THIERRY-MIEG, p. 235, t. c.; *C. apiciflava*, *alboscripta*, Loja, DOGNIN, p. 274, Le Nat. 1892 : n. spp.
- Cimelia vaulogeri*, Tunis, STAUDINGER, p. 291, pl. iii, fig. 11, Deutsche e. Z. Lep. v, n. sp.

- Cimicodes portentosa*, Peru, THIERRY-MIEG, p. 235, Le Nat. 1892, n. sp.
- Cleora godmani*, Mexico, DRUCE, p. 72, pl. xlviii, fig. 9, Biol. Centr. Am. Heter. ii, n. sp.
- Cleta* ? *minuta*, Central America, DRUCE, p. 111, pl. li, fig. 30, Biol. Centr. Am. Heter. ii, n. sp.
- Cnidia*, n. subg. of *Acidalia*; GUMPPENBERG, p. 223, N. Acta Ac. L.-C. Nat. cur. lviii.
- Comibana venezuelata*, figs. 14 & 15, *invasata*, fig. 18, pl. xlix, figured, Biol. Centr. Am. Heter. ii.
- C. belisama*, p. 87, pl. xlix, figg. 16 & 17, *callicula*, fig. 19, p. 88, Panama, DRUCE, Biol. Centr. Am. Heter. ii; *C. ecuadorata*, Zamora, DOGNIN, p. 186, Le Nat. 1892; *C. lufayaria*, Loja, DOGNIN, p. 206, t. c. : n. spp.
- Conosara*, n. g., *Selidosemidæ*, for *C. castanea*, n. sp., Tasmania; MEYRICK, p. 660, P. Linn. Soc. N.S.W. (2) vi.
- Coricia bicincta*, Loja, DOGNIN, Le Nat. 1892, p. 144, n. sp.
- Cratoptera arvina*, p. 34, pl. xlv, fig. 10, *mena*, fig. 11, *atina*, figs. 12 & 13, p. 35, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Criomacha*, n. g. for *Chlenias belidearia*, Feld.; MEYRICK, p. 659, P. Linn. Soc. N.S.W. (2) vi.
- Crocallis* ? *edaxaria*, Loja, DOGNIN, Le Nat. 1892, p. 123, n. sp.
- Dasydia tarpeia*, Colombia, THIERRY-MIEG, p. 236, Le Nat. 1892, n. sp.
- Dasypteroma*, n. g., near *Hibernia*, for *D. thaumasia*, n. sp., Spain, pl. ii, fig. 10; STAUDINGER, p. 168, Deutsche e. Z. Lep. v.
- Deilinia eccentricitis*, Australia, p. 635, *ænias*, Tasmania, *lithodora*, p. 637, *cremnias*, p. 638, *ochthadia*, p. 639, Australia, MEYRICK, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Descoreba rosalinga*, Brazil, THIERRY-MIEG, p. 236, Le Nat. 1892, n. sp.
- Diastictis margaritis*, Queensland, MEYRICK, p. 588, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Dichromodes ptilomacra*, S. Australia, LOWER, p. 8, Tr. R. Soc. S. Austr. xv; *D. petrina*, New Zealand, MEYRICK, p. 216, Tr. N. Z. Inst. xxiv : n. spp.
- Discalma*, n. g., for *Tephрина normata*, Wlk.; MEYRICK, p. 590, P. Linn. Soc. N.S.W. (2) vi.
- Doryodes acutaria*, full-grown larva; BEUTENMÜLLER, p. 78, Bull. Am. Mus. iv.
- Drepanodes valeria*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892; *D. moneta*, pl. xlv, fig. 2, *astanda*, fig. 3, p. 30, *asina*, fig. 4, *D. ? melina*, fig. 5, p. 31, Central America, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Drymoptila*, n. g., *Selidosemidæ*, for *D. temenitis*, n. sp., Australia; MEYRICK, P. Linn. Soc. N.S.W. (2) vi, p. 670.
- Ectropis pristis*, p. 626, *argalea*, *isombra*, p. 627, Australia, MEYRICK, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Egea temeraria*, Central Asia, STAUDINGER, p. 196, Deutsche e. Z. Lep. vi, n. sp.

- Ellopia cinereostrigaria*, Galicia, KLEMENSIEWICZ, p. 67, SB. z.-b. Wien, xlii, n. sp.
- Ennomos bitias*, Panama, DRUCE, p. 69, pl. xlviii, figs. 1 & 2, Biol. Centr. Am. Heter. ii, n. sp.
- Eois subtectata*, figured, pl. li, figg. 18 & 19, Biol. Centr. Am. Heter. ii.
- E. ascantia*, pl. li, fig. 20, *batea*, fig. 21, *camma*, fig. 22, p. 109, *nundina*, figg. 23 & 24, *ops*, figg. 25 & 26, *cassandra*, fig. 27, *E. ? ano*, fig. 28, p. 110, *catana*, fig. 29, p. 111, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Ephoria*, n. g. for *arenosa*, Butl. ; MEYRICK, p. 109, Tr. E. Soc. 1892.
- Ephyra megista*, p. 101, pl. li, fig. 1, *citrina*, p. 102, fig. 2, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Epicompsa*, n. g., *Selidosemidæ*, for *E. xanthocrossa*, n. sp., S. Australia ; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.
- Epifidonia fractistriga*, Ganssu, ALPHÉRAKY, p. 65, pl. iii, fig. 7, Romanoff Mem. vi, n. sp.
- Epione ? polydora*, Peru, THIERRY-MIEG, p. 235, Le Nat. 1892 ; *E. (?) asteria*, p. 43, pl. xlv, figg. 3 & 4, *megamede*, p. 44, figg. 5 & 6, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Erateina semiluctuata*, Colombia, THIERRY-MIEG, p. 236, Le Nat. 1892 ; *E. tibicina*, Loja, DOGNIN, p. 238, Le Nat. 1892 ; *E. artemisia* p. 97, *mecyra*, *rhesa*, p. 98, *medama*, *aroma*, p. 99, *hewitsomi*, *artemis*, p. 100, *buckleyi*, *arocha*, p. 101, *meduthina*, *bossora*, p. 102, N. W. South America, *capua*, St. Catharina, *masura*, *media*, p. 103, *peloria*, *wheeleri*, p. 104, *artabates*, *faventia*, p. 105, *whiteleyi*, *necysia*, p. 106, *hermæa*, *tryphosa*, p. 107, N. W. South America, DRUCE, Ann. N. H. (6) ix : n. spp.
- Eremia caelestinaria*, Central Asia, ALPHÉRAKY, p. 456, Hor. Ent. Ross. xxvi, n. sp.
- Ergavia bogotaria*, figured, pl. xlviii, fig. 20, Biol. Centr. Am. Heter. ii.
- E. calvina*, figg. 21 & 22, *caletra*, fig. 23, *assecoma*, figg. 24 & 25, Mexico, DRUCE, p. 79, pl. xlviii, Biol. Centr. Am. Heter. ii, n. spp.
- Erosiidae*, systematic position discussed ; HEYLAERTS, p. 15, Ann. Ent. Belg. xxxvi.
- Erosia incisaria*, figured, pl. liii, figg. 3 & 4, Biol. Centr. Am. Heter. ii.
- E. (Dirades) tridentata*, p. 14, *bidentata*, p. 15, Java, HEYLAERTS, Ann. Ent. Belg. xxxvi ; *E. opigena*, pl. liii, figg. 1 & 2, p. 126, *omana*, fig. 5, *cassera*, figg. 6 & 7, *E. ? carilla*, fig. 8, *E. ocalea*, fig. 9, p. 127, *ora*, fig. 10, p. 128, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Erosina meropia*, Costa Rica, DRUCE, p. 55, pl. xlvi, fig. 10, Biol. Centr. Am. Heter. ii, n. sp.
- Erythrolophus*, n. g., *Ephyrides*, p. 10, for *E. fascicorpus*, n. sp., Khasia Hills, p. 11 ; SWINHOE, Tr. E. Soc. 1892.
- Eubolia ? flavescens*, Ordoss, ALPHÉRAKY, p. 68, pl. iii, fig. 6, Romanoff Mem. vi, n. sp.
- Eucosmia montivagata*, larva ; PÜNGELER, S. E. Z. liii, p. 75.

- Eumera*, n. g., near *Eugonia* for *E. regina*, n. sp., Amasia, pl. ii, fig. 8 ;  
 STAUDINGER, p. 162, Deutsche e. Z. Lep. v.
- Eupithecia innotata* and *fraxinata*, note on ; HABICH, p. 159, S. E. Z. liii,  
*E. castigata*, note on melanic var. of ; TUGWELL, Ent. xxv, p. 41. *E.*  
*extensaria*, larval habits ; PORRITT, Ent. M. M. xxviii, p. 122.
- E. horticolaria*, Rhineland, FUCHS, JB. nass. Ver. xlv, p. 102 ; *E. accurata*,  
 Central Asia, p. 251, *irritaria*, Armenia, p. 253, *albidulata*, Caucasus,  
 p. 254, *kuldschaensis*, p. 255, *æquata*, p. 256, *marginata*, p. 257,  
 Central Asia, *subfenestrata*, Trans-Caucasus, p. 259, STAUDINGER,  
 Deutsche e. Z. Lep. v ; *E. filicata*, p. 1, *rigida*, p. 2, pl. 1, fig. 6,  
 Khasia Hills, SWINHOE, Tr. E. Soc. 1892 : n. spp.
- Eusarca jacularia*, n. var., *minor* ; ALPHÉRAKY, p. 71, Romanoff Mem. vi.  
*E. acidaria*, p. 204, *dispar*, p. 205, Central Asia, STAUDINGER, Deutsche  
 e. Z. Lep. v, n. spp.
- Euschema ares*, characters and synonymy ; WEYMER, p. 122, S. E. Z.  
 liii.
- Fergana*, n. g., near *Chemerina*, for *F. oreophila*, n. sp., Alai Mts., pl. ii,  
 fig. 9 ; STAUDINGER, p. 166, Deutsche e. Z. Lep. v.
- Fidonia cretacea*, Central Asia, STAUDINGER, p. 197, Deutsche e. Z. Lep.  
 v ; *F. opulenta*, Peru, THIERRY-MIEG, p. 216, Le Nat. 1892 ; *F.*  
*incandescens*, Chili, THIERRY-MIEG, p. 236, t. c. : n. spp.
- Geometra iridaria*, figured, pl. xlix, fig. 5, Biol. Centr. Am. Heter. ii.
- G. muscipunctata*, Loja, DOGNIN, p. 186, Le Nat. 1892 ; *G. carbina*,  
 pl. xlix, fig. 8, *aturia*, fig. 9, Mexico, DRUCE, p. 84, Biol. Centr. Am.  
 Heter. ii : n. spp.
- Glaucopteryx immaculata*, Greenland, SKINNER, p. 159, P. Ac. Phil. 1892,  
 n. sp.
- Gnopharmia*, n. g., p. 181, for *Gnophos colchidaria*, Led., with *G. rubraria*,  
 Syria, pl. ii, fig. 12, p. 184, *maculifera*, Samarcand, fig. 13, p. 187 ;  
 STAUDINGER, Deutsche e. Z. Lep. v.
- Gnophos vastaria*, Central Asia, p. 189, *dubitaria*, Persia, p. 192, STAU-  
 DINGER, Deutsche e. Z. Lep. v, n. spp.
- Gonanticlea*, n. g., p. 3, for *G. aversa*, n. sp., Khasia Hills, p. 4 ; SWINHOE,  
 Tr. E. Soc. 1892.
- Gonodela kilimanjarensis*, *rhabdophora*, E. Africa, HOLLAND, Ent. xxv  
 (Supp.), p. 95, n. spp.
- Gynopteryx fundaria*, multiple synonymy ; DRUCE, p. 36, Biol. Centr. Am.  
 Heter. ii.
- G. asopia*, pl. xliv, fig. 14, *mynes*, fig. 15, *megasa*, fig. 16, *minoa*, fig. 17,  
 p. 37, *asteria*, figg. 18 & 19, p. 38, Central America, Biol. Centr. Am.  
 Heter. ii, n. spp.
- Halia berytaria*, Beyrout, STAUDINGER, p. 200, Deutsche e. Z. Lep. v,  
 n. sp.
- Halthia nigripars*, Khasia Hills, SWINHOE, p. 16, pl. i, fig. 1, Tr. E. Soc.  
 1892 ; *H. aurantiaca*, Ganssu, ALPHÉRAKY, p. 56, pl. iii, fig. 2,  
 Romanoff Mem. vi : n. spp.
- Hemithea idæa*, Khasia Hills, SWINHOE, p. 6, Tr. E. Soc. 1892, n. sp.

- Herbita tenebrica*, Loja, DOGNIN, p. 185, Le Nat. 1892; *H. ? nedusia*, Panama, DRUCE, p. 25, pl. xlv, fig. 1, Biol. Centr. Am. Heter. ii; *H. ? capucina*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892 : n. spp.
- Himera nestor*, Guatemala, DRUCE, p. 70, pl. xlviii, fig. 3, Biol. Centr. Am. Heter. ii, n. sp.
- Hydriomena gypsomela*, S. Australia, LOWER, p. 11, Tr. R. Soc. S. Austr. xv, n. sp.
- Hygrochroma viola*, Colombia, THIERRY-MIEG, p. 237, Le Nat. 1892; *H. nondina*, pl. xlv, figg. 24-26, *bubona*, figg. 27 & 28, p. 58, *cæsia*, pl. xlvii, figg. 1 & 2, *nemora*, figg. 4-7, p. 59, Central America, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Hyperythra rufo-fasciata*, Laos, POUJADE, p. 274, pl. xi, fig. 8, N. Arch. Mus. Paris (3) iii, n. sp.
- Hypochroma aurantiacea*, p. 297, *diffundens*, p. 298, Australia, LUCAS, P. Linn. Soc. N.S.W. (2) vi; *H. eugramma*, S. Australia, LOWER, p. 14, Tr. R. Soc. S. Austr. xv : n. spp.
- Idea hampsoni*, p. 14, *albivertex*, p. 15, Khasia Hills, SWINHOE, Tr. E. Soc. 1892, n. spp.
- Iodis implicata*, *barnardæ*, p. 293, *crenulata*, p. 294, *multitincta*, *militaris*, p. 295, Australia, LUCAS, P. Linn. Soc. N.S.W. (2) vi; *I. commoda*, *nitida*, LUCAS, p. 252, *op. cit.* vii; *I. ipomopsis*, S. Australia, LOWER, p. 14, Tr. R. Soc. S. Austr. xv : n. spp.
- Kyrtolitha*, n. g. for *Ortholitha* (K.) *obstinata*, n. sp., Central Asia, pl. ii, fig. 18; STAUDINGER, p. 213, Deutsche e. Z. Lep. v.
- Lasiogma*, n. g., = (*Trichopleura*, Stgr.) ; MEYRICK, p. 70, Tr. E. Soc. 1892.
- Leucula avitta*, pl. xlv, fig. 3, *meganira*, fig. 5, DRUCE, p. 52, Biol. Centr. Am. Heter. ii, n. spp.
- Limeria*, n. g. near *Egea*, for *L. macraria*, n. sp., Sarepta, pl. ii, fig. 14; STAUDINGER, p. 195, Deutsche e. Z. Lep. v.
- Lithostege witzenmanni*, Kurdistan, STANDFUSS, p. 668, pl. xv, fig. 8, Romanoff Mem. vi, n. sp.
- Lobophora rosula*, Loja, DOGNIN, p. 274, Le Nat. 1892; *L. ebriola*, *L. ? parecida*, Loja, DOGNIN, p. 295, *t. c.* : n. spp.
- Lomographa spodina*, p. 633, *isocyma*, p. 634, Australia, MEYRICK, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Longula*, n. g., near *Acidalia*, for *L. extraordinaria*, n. sp., Beyrout, pl. ii, fig. 7; STAUDINGER, p. 157, Deutsche e. Z. Lep. v.
- Lycauges donovani*, Traansvaal, DISTANT, p. 240, pl. ii, fig. 4, Naturalist Transvaal, n. sp.
- Lycimna cajanuma*, Loja, DOGNIN, p. 185, Le Nat. 1892, n. sp.
- Macaria suffluta*, Gn., = (*arata*, Saalm.) ; SNELLEN, p. 83, Tijdschr. Ent. xxxv.
- M. normata*, *anomalata*, Amdo, ALPHÉRAKY, p. 455, Hor. Ent. Ross. xxvi; *M. drepanata*, Flores, *goramata*, Goram, RÖBER, p. 331, Tijdschr. Ent. xxxiv (figg. in xxxv) : n. spp.
- Maresia ? undifasciata*, Borneo, BUTLER, p. 132, pl. vi, fig. 10, P. Z. S. 1892, n. sp.

- Mecoceras aulis*, Mexico, DRUCE, p. 95, pl. 1, fig. 15, Biol. Centr. Am. Heter. ii, n. sp.
- Megalochlora*, n. g., near *Euchloris*; MEYRICK, p. 95, Tr. E. Soc. 1892.
- Megametoxyon*, n. g., *Boarmiidae*, for *M. piperatum*, n. sp., Gaussu, pl. iii, fig. 3; ALPHÉRAKY, p. 58, Romanoff Mem. vi.
- Metanema cabiria*, p. 67, pl. xlvii, figg. 20 & 21, *bonadea*, figg. 22 & 23, *neon*, figg. 24 & 25, *brea*, fig. 26, p. 68, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Metrocampa glaucius*, Australia, MEYRICK, p. 644, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Micronia*: systematic position; SNELLEN, p. 19, Tijdschr. Ent. xxxv.  
*M. archilis*, Obert., referred to *Pseudomicronia*, and figured, pl. iii, fig. 1; ALPHÉRAKY, p. 53, Romanoff Mem. vi.
- M. simpliciatia*, Goram, RÜBER, p. 331, Tijdschr. Ent. xxxiv (fig. in xxxv), n. sp.
- Mictodoca*, n. g., *Selidosemidæ*, for *M. toxenta*, n. sp., Australia; MEYRICK, p. 661, P. Linn. Soc. N.S.W. (2) vi.
- Mnesampela*, n. g., with *M. comarcha*, p. 656, *lenæa*, p. 657, n. spp., Australia, and including *Idiodes privata*, Gn., and *Chlenias fucata*, Feld.; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.
- Mnesampela privata*, metamorphoses; LIDGETT, Vict. Nat. ix, p. 67.
- Mochlotona*, n. g., *Selidosemidæ*, p. 672, for *M. phasmatias*, n. sp., Australia, p. 673; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.
- Monoctenia iximia*, *calladelphe*, S. Australia, LOWER, p. 7, Tr. R. Soc. S. Austr. xv, n. spp.
- Mychonia*? *bityla*, pl. xlvii, fig. 27, *noela*, fig. 28, Central America, DRUCE, p. 69, Biol. Centr. Am. Heter. ii, n. spp.
- Myinodes*, n. g., for *interpunctaria*, H.-S.; MEYRICK, p. 82, Tr. E. Soc. 1892.
- Mysticoptera*, n. g., for *sexalisata*, Hb.; MEYRICK, p. 62, Tr. E. Soc. 1892.
- Nelo*, see *Bombyces*, p. 242.
- Nemoria pretiosaria*, n. var. *gigantaria*; STAUDINGER, p. 143, Deutsche e. Z. Lep. v. *N. iris*, figured, pl. xlix, fig. 10, Biol. Centr. Am. Heter. ii.
- N. mollissima*, *N.?* *vitiosaria*, Ecuador, DOGNIN, p. 186, Le Nat. 1892; *N. assa*, Costa Rica, DRUCE, p. 85, pl. xlix, figg. 11 & 12, Biol. Centr. Am. Heter. ii: n. spp.
- Neolythria*, n. g., near *Lythria*, p. 71, for *N. abraxaria*, n. sp., China, p. 72, pl. iii, fig. 8; ALPHÉRAKY, Romanoff Mem. vi.
- Neoteristis*, n. g., *Selidosemidæ*, for *N. paraphanes*, n. sp., Tasmania; MEYRICK, p. 672, P. Linn. Soc. N.S.W. (2) vi.
- Neurophana amatonga*, E. Africa, VUILLOT, p. exciv, Bull. Soc. Ent. Fr. lxi, n. sp.
- Nipteria impunctata*, *panacea*, *valens*, *panopea*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892; *N. semigrisea*, *minor*, *erigone*, Peru, *tapponia*, Brazil, THIERRY-MIEG, p. 236, t. c.; *N. viatrix*, THIERRY-MIEG, p. 262, t. c.; *N. athiopissa*, *sororcula*, *tironaria*, *pellucenta*, *costistigmata*, *secturata*, *dividua*, Loja, DOGNIN, p. 238, t. c.: n. spp.

- Nychiodes lividaria*, varr. described ; STAUDINGER, p. 171, Deutsche e. Z. Lep. v.
- Odontopera muscularia*, Central Asia, STAUDINGER, p. 164, Deutsche e. Z. Lep. v ; *O. bubula*, Mexico, DRUCE, p. 67, p. xlvii, fig. 19, Biol. Centr. Am. Heter. ii : n. spp.
- Enospila*, n. g., p. 5, *Thalera flavifusata*, Wlk., with *Æ. lyra*, n. sp., Khasia Hills, p. 6 ; SWINHOE, Tr. E. Soc. 1892.
- Omphax nænia*, Mexico, DRUCE, p. 86, pl. xlix, fig. 13, Biol. Centr. Am. Heter. ii, n. sp.
- Onychora*, n. g. for *agaritharia*, Dard. ; MEYRICK, p. 123, Tr. E. Soc. 1892.
- Ophthalmophora melæ*, pl. 1, figg. 16 & 17, *alba*, fig. 21, p. 96, *asopis*, figg. 19 & 20, *asplendon*, fig. 22, p. 97, *molpadia*, fig. 24, p. 98, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Ortholitha appropinquaria*, p. 208, *integraria*, p. 209, *supproximaria*, p. 210, Central Asia, *subvicinaria*, Caucasus, p. 211, *perplexaria*, Trans-Caucasus, pl. ii, fig. 17, p. 212, STAUDINGER, Deutsche e. Z. Lep. v, n. spp.
- Oulobophora*, n. g. for *Lobophora* (*O.*) *macedonica*, n. sp., Macedonia, pl. ii, fig. 19, STAUDINGER, p. 219, Deutsche e. Z. Lep. v.
- Oxydia gastropachata*, figured, pl. xliii, fig. 10, Biol. Centr. Am. Heter. ii.
- O. dognini*, Peru, THIERRY-MIEG, Le Nat. 1892, p. 216 ; *O. aromata*, Mexico, p. 27, pl. xliii, fig. 11, *masthala*, Panama, fig. 9, *medona*, Guatemala, figg. 15 & 16, *artaxa*, Centr. America, figg. 12-14, p. 28, *angusta*, Panama, figg. 17 & 18, p. 29, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Palæoctenis*, n. g., = (*Heteropsis*, Gn.) ; MEYRICK, p. 68, Tr. E. Soc. 1892.
- Panagra fixseni*, Amdo, ALPHÉRAKY, p. 456, Hor. Ent. Ross. xxvi, n. sp.
- Paralæa*, n. g., *Selidosemidæ*, for *P. promacha*, n. sp., W. Australia ; MEYRICK, p. 671, P. Linn. Soc. N.S.W. (2) vi.
- Pelagia*, n. subg. of *Acidalia*, GUMPENBERG, p. 236, N. Acta Ac. L.-C. Nat. cur. lviii.
- Pellonia tabidaria*, Z., and *sieversi*, Chr., distinctive characters ; CHRISTOPH, S. E. Z. liii, p. 245.
- P. adauctata*, Margelan, STAUDINGER, p. 160, Deutsche e. Z. Lep. v ; *P. grumaria*, Amdo, ALPHÉRAKY, p. 454, Hor. Ent. Ross. xxvi : n. spp.
- Perigramma religiosa*, *P. ? theodora*, Peru, THIERRY-MIEG, p. 236, Le Nat. 1892, n. sp.
- Perixera pulverulenta*, Khasia Hills, SWINHOE, Tr. E. Soc. 1892, p. 9, pl. i, fig. 8, n. sp.
- Phasiane boarmiata*, Amurland, GRAESER, p. 232, Berl. Ent. Zeit. xxxvii ; *P. tancrearia*, Kuldja, STAUDINGER, p. 201, Deutsche e. Z. Lep. v : n. spp.
- Phorodesma smaragdaria*, varr. described ; STAUDINGER, p. 141, Deutsche e. Z. Lep. v.

- P. smaragdularia*, Margelan, STAUDINGER, p. 142, Deutsche e. Z. Lep. v, n. sp.
- Photoscotosia*, Warr., is same as *Trichopleura*, Stgr.; *T. amplicata*, pl. iii, fig. 10, *T. undulosa*, fig. 9, figured; ALPHERAKY in Romanoff Mem. vi.
- Phthorarcha*, n. g. for *primigena*, Stgr.; MEYRICK, p. 80, Tr. E. Soc. 1892.
- Phyletis prasonaria*, Khasia Hills, SWINHOE, p. 12, Tr. E. Soc. 1892, n. sp.
- Phyllia triangularia*, Blanch., = (*cinerescens*, Butl.); REED, p. 68, Act. Soc. Chili, i.
- Planolocha*, n. g., *Selidosemidæ*, p. 645, for *P. autoptis*, n. sp., Australia, p. 646; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.
- Polla avellana*, Peru, THIERRY-MIEG, p. 235, Le Nat. 1892, n. sp.
- Polynesia*, n. g., p. 4, type *Pomasia sunandeva*, Wlk., with *P. truncapex*, n. sp., Khasia Hills, p. 5; SWINHOE, Tr. E. Soc. 1892.
- Polythrena croceitincta*, Loja, DOGNIN, p. 107, Le Nat. 1892, n. sp.
- Proboloptera*, n. g., *Selidosemidæ*, for *P. embolias*, n. sp., Australia; MEYRICK, p. 641, P. Linn. Soc. N.S.W. (2) vi.
- Pseudotagma*, n. g., near *Chemerina*, for *Eusarca interpunctaria*, H.-Sch.; STAUDINGER, p. 168, Deutsche e. Z. Lep. v.
- Psilosticha*, n. g., for *Tephrosia mactaria*, Gn.; MEYRICK, p. 624, P. Linn. Soc. N.S.W. (2) vi.
- Pyrinia arxata*, p. 33, pl. xlv, figg. 6 & 7, *megara*, p. 34, figg. 8 & 9, Panama, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Racheospila roseilinearia*, *pellucidaria*, Ecuador, DOGNIN, p. 206, Le Nat. 1892; *R. arycauda*, pl. xlix, fig. 21, *athena*, fig. 22, p. 89, *calliope*, pl. 1, figg. 1 & 2, *mustela*, fig. 3, *capys*, fig. 4, *astræa*, fig. 5, p. 90, *atrappes*, fig. 6, p. 91, *busa*, fig. 8, *R. ? batina*, figg. 9 & 10, *asmura*, fig. 11, p. 92, Central America, DRUCE, Biol. Centr. Am. Heter. ii : n. spp.
- Rhodometra*, n. g., for the *Sterrha* of other authors than Hubner; MEYRICK, p. 75, Tr. E. Soc. 1892.
- Rhoptria*, n. subg. of *Boarmia*; GUMPPENBERG, p. 299, N. Acta Ac. L.-C. Nat. cur. lviii.
- Rhyparia hamiltonia*, Khasia Hills, SWINHOE, p. 17, pl. i, fig. 5, Tr. E. Soc. 1892, n. sp.
- Rumia cratægata*, variation in colour of larvæ; GOULD, Tr. E. Soc. 1892, p. 216.
- Rumina luteolata*, n. var. *emaculata*; GRAESER, p. 317, Berl. Ent. Zeit. xxxvii.
- Sabulodes miliaria*, Loja, DOGNIN, Le Nat. 1892, p. 170; *S. lojanata*, *sticta*, *franciscata*, *xylinochroma*, DOGNIN, p. 185, t. c.; *S. ornatissima*, Peru, THIERRY-MIEG, p. 262, t. c. : n. spp.
- Scardamia chrysolina*, Australia, MEYRICK, p. 640, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Scioglyptis*, n. g., *Selidosemidæ*, for *S. lithinopa*, p. 593, *hemeropa*, p. 594, n. spp., Australia; MEYRICK, P. Linn. Soc. N.S.W. (2) vi.

- Scodiomima*, n. g. for *Scodiona* (*S.*) *crocallaria*, n. sp., Central Asia, pl. ii, fig. 15 ; STAUDINGER, p. 202, Deutsche e. Z. Lep. v.
- Scordylia valbum*, Peru, THIERRY-MIEG, p. 216, Le Nat. 1892, n. sp.
- Scotosia senescens*, N. Persia, p. 223, *neglectata*, Central Asia, p. 225, STAUDINGER, Deutsche e. Z. Lep. v ; *S. confirmata*, Loja, DOGNIN, p. 59, Le Nat. 1892 : n. spp.
- Selenia illunaria* and *lunaria*, colour influenced by temperature in pupal stage ; MERRIFIELD, Tr. E. Soc. 1892, p. 34.
- S. monima*, pl. xlv, figg. 11 & 12, *asteria*, fig. 13, *myrina*, fig. 14, *banasa*, figg. 15 & 16, p. 56, *nabdalsa*, fig. 21, *narcæa*, figg. 17 & 18, *belisama*, figg. 19 & 20, *azamora*, figg. 22 & 23, p. 57, Mexico and Guatemala, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Selidosemidæ*, tabulation of the Australian genera of ; MEYRICK, pp. 582-585, P. Linn. Soc. N.S.W. (2) vi.
- Selidosema aristarcha*, N. Zealand, MEYRICK, Tr. N. Z. Inst. xxiv ; *S. cheleuta*, p. 598, *amphiclina*, p. 599, *eremias*, *thermea*, p. 600, *capnota*, p. 605, *leptodesma*, p. 606, *leucoplecta*, p. 607, *agoræa*, p. 608, *aganopa*, p. 610, *adelphodes*, p. 611, *zascia*, p. 613, *argoplaca*, p. 615, Australia, MEYRICK, P. Linn. Soc. N.S.W. (2) vi, n. spp.
- Sicya aurunca*, pl. xlv, fig. 7, *mesapia*, fig. 8, *bala*, fig. 9, *neda*, figg. 10 & 11, p. 46, *myron*, figg. 12 & 13, *S. ? ascolia*, fig. 14, p. 47, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Spargania longipalpata*, Peru, THIERRY-MIEG, p. 262, Le Nat. 1892, n. sp.
- Stathmorrhopa*, n. g. for *Chlenias beggaria*, Gn. ; MEYRICK, p. 660, P. Linn. Soc. N.S.W. (2) vi.
- Stegania crina*, Khasia Hills, SWINHOE, p. 14, pl. i, fig. 14, Tr. E. Soc. 1892, n. sp.
- Sterrha virgenpamba*, Loja, DOGNIN, p. 237, Le Nat. 1892, n. sp.
- Stibaroma*, n. g., *Selidosemidæ*, for *S. melanotoxa*, n. sp., Australia ; MEYRICK, p. 669, P. Linn. Soc. N.S.W. (2) vi.
- Stibaroma trigramma*, S. Australia, LOWER, p. 9, Tr. R. Soc. S. Austr. xv, n. sp.
- Stigma isthmensis*, Panama, THIERRY-MIEG, p. 236, Le Nat. 1892, n. sp.
- Streptopteron*, n. g. (*Ephyrides*), p. 9, for *S. posticamplum*, n. sp., Khasia Hills, p. 10, pl. i, fig. 12 ; SWINHOE, Tr. E. Soc. 1892.
- Strophidia falcifera*, E. Africa, WEYMER, p. 118, S. E. Z. liii, n. sp.
- Syllexis extendata*, *chartularia*, Loja, DOGNIN, p. 144, Le Nat. 1892, n. sp.
- Synchlora ? nortia*, Mexico, DRUCE, p. 93, pl. l, fig. 12, Biol. Cent. Am. Heter. ii, n. sp.
- Syngiodes*, n. g., type *Anisodes diffusaria*, Moore, with *S. diffusifascia*, p. 11, pl. i, fig. 9, *histrionaria*, p. 12, n. spp., Khasia Hills ; SWINHOE, Tr. E. Soc. 1892.
- Syngonorthus*, n. g., *Urapterygidæ*, for *S. subpunctatus*, n. sp., Borneo, pl. vi, fig. 9 ; BUTLER, p. 130, P. Z. S. 1892.
- Tachyphyle ? neis*, Central America, DRUCE, p. 93, pl. l, figs. 13 & 14, Biol. Centr. Am. Heter. ii, n. spp.

- Tephronia oranaria*, Algeria, p. 179, *castilliaris*, Spain, p. 180, pl. ii, fig. 11, STAUDINGER, Deutsche e. Z. Lep. v, n. spp.
- Tephrosia bostar*, p. 76, pl. xlviii, fig. 13, *bura*, fig. 14, *T. ? azenia*, fig. 15, *balsa*, fig. 16, p. 77, *T. murcena*, figg. 17 & 18, *axica*, fig. 19, p. 78, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Terpnomicta lala*, Khasia Hills, SWINHOE, p. 13, Tr. E. Soc. 1892, n. sp.
- Tetracis azonax*, pl. xlv, fig. 8, *belides*, fig. 9, Central America, DRUCE, p. 54, Biol. Centr. Am. Heter. ii, n. spp.
- Thalassodes liliana*, Khasia Hills, SWINHOE, p. 7, pl. i, fig. 2, Tr. E. Soc. 1892, n. sp.
- Thalera acte*, Khasia Hills, SWINHOE, p. 6, pl. i, fig. 13, Tr. E. Soc. 1892 ; *T. spumosaria*, *eximia*, Peru, DOGNIN, p. 237, Le Nat. 1892 : n. spp.
- Thamnonoma wavaris*, aberration ; VRIES & SNELLEN, Tijdschr. Ent. xxxv, pp. 24 & 25.
- Therina axion*, pl. xlv, figg. 25 & 26, *betala*, fig. 27, *munda*, fig. 28, p. 50, *bada*, pl. xlv, figg. 1 & 2, *T. ? nomia*, fig. 4, p. 51, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Tosaura*, n. g., p. 15, type *Metabrazas falcipennis*, Moore, with *T. picaria*, n. sp., Khasia Hills, p. 16, pl. i, fig. 16 ; SWINHOE, Tr. E. Soc. 1892.
- Trichoclada opsinaria*, Khasia Hills, SWINHOE, p. 15, Tr. E. Soc. 1892, n. sp.
- Trichopteura leechi*, Amdo, ALPHÉRAKY, p. 458, Hor. Ent. Ross. xxvi, n. sp.
- Triphosia ravulata*, Central Asia, STAUDINGER, p. 221, Deutsche e. Z. Lep. v, n. sp.
- Trygodes musivaria*, figured, pl. li, figg. 6 & 7, Biol. Centr. Am. Heter. ii.
- T. niobe*, pl. li, figg. 9 & 10, *merta*, fig. 11, p. 106, *ategua*, fig. 12, *melia*, fig. 13, *callas*, fig. 14, *carbania*, fig. 15, p. 107, *T. ? auxesia*, figg. 16 & 17, p. 108, Central America, DRUCE, Biol. Centr. Am. Heter. ii, n. spp.
- Urapteryx hilaris*, Peru, THIERRY-MIEG, p. 217, Le Nat. 1892, n. sp.
- Xanthorhoe paradelpa*, p. 11, *hyperythra*, p. 12, *xanthospila*, p. 13, S. Australia, LOWER, Tr. R. Soc. S. Austr. xv, n. spp.
- Xenomusa metallica*, Brisbane, LUCAS, p. 299, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Zamacra*, n. g. for *flabellaria*, Heeg. ; MEYRICK, p. 121, Tr. E. Soc. 1892.
- Zonosoma albilineata*, Central Asia, STAUDINGER, p. 159, Deutsche e. Z. Lep. v ; *Z. alodia*, Loja, DOGNIN, p. 16, Le Nat. 1892 : n. spp.

### PYRALIDÆ (including CRAMBIDÆ, PHYCITIDÆ, SICULODIDÆ).

- [Cf. COCKERELL (177), DISTANT (216), FERNALD (280), HULST (441), KELLOGG (479), LUCAS (568, 569), MÜLLER (629), PAGENSTECHER (667, 668, 669), RAGONOT (712), REBEL (715), RÖBER (767), SNELLEN (872, 873), STAUDINGER (890, 891), SWINHOE (909), WARREN (983).]
- Acharana rudis*, Japan, *minoralis*, Accra, *maledicta*, Pitcairn I., p. 435, *descripta*, S. Paolo, *simplex*, Bombay, *olivescens*, Ecuador, *indistincta*, Japan, p. 436, *elongalis*, Formosa, *fuscescens*, Japan, p. 437, WARREN, Ann. N. H. (6) ix, n. spp.

- Acrobasis cirroferella*, Texas, HULST, p. 60, Canad. Ent. xxiv, n. sp.
- Actenoides*, n. g., type *Nephopteryx creperalis*, Swinhoe; WARREN, p. 173, Ann. N. H. (6) ix.
- Adeloides*, n. g., type *Hoterodes cinerealis*, Moore; WARREN, p. 299, Ann. N. H. (6) ix.
- Aglaops*, n. g., type *Mecyna furnacalis*, Gn.; WARREN, p. 298, Ann. N. H. (6) ix.
- Agrammia cervinalis*, *lutealis*, S. Paolo, WARREN, p. 439, Ann. N. H. (6) ix, n. spp.
- Anomostictis*, n. n. (to replace *Diastictis*, Hb. Verz., p. 355), with *A. cæcalis*, n. sp., California; WARREN, p. 434, Ann. N. H. (6) ix.
- Anthocrypta*, n. g. for *Ebulea subinquinalis*, Gn.; WARREN, p. 296, Ann. N. H. (6) ix.
- Aphomia*? *proavitella*, Canary Is., REBEL, p. 262, Ann. Hofmuseum Wien, vii, n. sp.
- Aphytoceros nigrolinealis*, Goya, p. 390, *longipalpis*, Transvaal, p. 391, WARREN, Ann. N. H. (6) ix, n. spp.
- Aplographe*, n. g., type *Scopula bisignata*, Butl. with *A. fulvalis*, Cape Good Hope, *umbrosalis*, N. China, n. spp.; WARREN, p. 301, Ann. N. H. (6) ix.
- Aporodes obscura*, Sarepta, *versicolor*, Washington Terr.; WARREN, p. 175, Ann. N. H. (6) ix, n. spp.
- Archernis pubescens*, E. Asia, WARREN, p. 300, Ann. N. H. (6) ix, n. sp.
- Autocosmia*, n. g., near *Cosmocreon*, p. 432, for *A. concinna*, n. sp., N.W. America, WARREN, p. 433, Ann. N. H. (6) ix.
- Bæotarcha cunealis*, Port Darwin, WARREN, p. 396, Ann. N. H. (6) ix, n. sp.
- Blepharucha*, n. g., type *Phalaena zaide*, Stoll.; WARREN, p. 177, Ann. N. H. (6) ix.
- Botys commellalis*, early stages; CHRÉTIEN, Bull. Soc. Ent. Fr. lxi, p. cexii.
- B. graeseri*, Siberia, STAUDINGER, p. 384, pl. iii, fig. 24, Deutsche e. Z. Lep. v; *B. catasemalis*, Ké I., RÖBER, p. 333, Tijdschr. Ent. xxxiv (fig. in xxxv): n. spp.
- Bradyrrhoa ochrospilella*, Canary Is., REBEL, p. 258, pl. xvii, fig. 13, Ann. Hofmuseum Wien, vii, n. sp.
- Camptomastix*, n. g., type *Botys pacalis*, Leech; WARREN, p. 439, Ann. N. H. (6) ix.
- Cataclysta lemnae*, respiration of larva; MÜLLER, Zool. Jahrb. Syst. vi, p. 623: *Cataclysta* spp.? subaquatic oviposition; MÜLLER, t. c. p. 625.
- C. hapilista*, Khasia Hills, SWINHÖE, p. 20, pl. i, fig. 11, Tr. E. Soc. 1892, n. sp.
- Cephis*, n. g., *Crambinae*, p. 295, for *C. galleriellus*, n. sp., Tunis, p. 296, pl. iii, fig. 12; RAGONOT, Deutsche e. Z. Lep. v.
- Chilo infuscatellus*, Java, SNELLEN, p. 347, Tijdschr. Ent. xxxiv, n. sp.
- Chipeta*, n. g., near *Tampa*, for *C. perlepidella*, n. sp., Florida; HULST, p. 62, Canad. Ent. xxiv.

- Choristostigma*, n. g., type *Botys plumbosignata*, Fern., with *C. elegantalis*, n. sp., California; WARREN, Ann. N. H. (6) ix.
- Cirrochrista margarita*, S. Paolo, WARREN, p. 430, Ann. N. H. (6) ix, n. sp.
- Cnephidia*, n. g., near *Selagia*, for *C. kenteriella*, n. sp., Siberia; RAGONOT, p. cccxxv, Bull. Soc. Ent. Fr. lxi.
- Conogethes nubifera*, Brisbane, LUCAS, p. 264, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Coptobasis ridopalis*, Khasia Hills, SWINHOE, p. 18, Tr. E. Soc. 1892, n. sp.
- Cornifrons pulveralis*, N. America, WARREN, p. 435, Ann. N. H. (6) ix, n. sp.
- Cosmocreon*, n. g., type *B. albiceraleis*, Grote; WARREN, p. 433, Ann. N. H. (6) ix.
- Crambus atlanticus*, n. var. *canariensis*; REBEL, p. 254, pl. xvii, figg. 11 & 12, Ann. Hofmuseum Wien, vii.
- Cremnophila*, n. g., near *Adelosemia*, for *C. auranticiliella*, n. sp., Siberia; RAGONOT, p. cccxxvi, Bull. Soc. Ent. Fr. lxi.
- Cybolomia extorris*, N. America, WARREN, p. 395, Ann. N. H. (6) ix, n. sp.
- Diacme*, n. g., type *Samea phyllisalis*, Wlk.; WARREN, p. 389, Ann. N. H. (6) ix.
- Diatræa saccharalis*, notes on in Jamaica, with metamorphoses; COCKRELL (177).
- D. striatalis*, Java, SNELLEN, p. 349, pl. xix, figs. 1-4, Tijdschr. Ent. xxxiv, n. sp.
- Dichotis*, n. g., type *Botys teneralis*, Led.; WARREN, p. 392, Ann. N. H. (6) ix.
- Didymostoma*, n. g., type *Botys euphranoralis*, Wlk.; WARREN, p. 392, Ann. N. H. (6) ix.
- Dioryctria nivaliensis* (Rag. i. l.), Canary Is., REBEL, p. 256, pl. xvii, fig. 10, Ann. Hofmuseum Wien, vii, n. sp.
- Diviana nymphaella*, Florida, HULST, p. 62, Canad. Ent. xxiv, n. sp.
- Durdara ovifera*, Borneo, BUTLER, p. 129, pl. vi, fig. 7, P. Z. S. 1892, n. sp.
- Ebulea fumipennis*, p. 392, *E. ? straminea*, California, *pulverulenta*, Dharmasala, p. 393, WARREN, Ann. N. H. (6) ix, n. spp.
- Ematheudes tunesiella*, Tunis, RAGONOT, p. 298, Deutsche e. Z. Lep. v, n. sp.
- Endotricha rogenhoferi*, Canary Is., REBEL, p. 249, pl. xvii, fig. 1, Ann. Hofmuseum Wien, vii; *E. crobulus*, p. 305, *dispergens*, p. 306, Queensland, LUCAS, P. Linn. Soc. N.S.W. (2) vi : n. sp.
- Ennychia intrudens*, New Zealand, WARREN, p. 175, Ann. N. H. (6) ix, n. sp.
- Ephestia sericaria*, Scott, queried as identical with *kuhniella*; RAGONOT, p. cclxxiv, Bull. Soc. Ent. Fr. lxi.
- Euclasta warreni*, Transvaal, DISTANT, Naturalist Transvaal, p. 241, pl. ii, fig. 5, n. sp.
- Euctenospora*, n. g., near *Blepharucha*, for *E. castalis*, n. sp., Abyssinia; WARREN, Ann. N. H. (6) ix.

- Euergestis consimilis* (no locality), WARREN, p. 433, Ann. N. H. (6) ix, n. sp.
- Euzophera concolorella*, Tunis, RAGONOT, p. 297, Deutsche e. Z. Lep. v, n. sp.
- Glauconoë*, n. g., type *Botys deductalis*, Wlk., with *G. subflavalis*, Madagascar, *fuscescens*, Sumatra, n. spp.; WARREN, pp. 296 & 297, Ann. N. H. (6) ix.
- Glyphodes prothymalis*, Khasia Hills, SWINHOE, p. 19, pl. i, fig. 15, Tr. E. Soc. 1892, n. sp.
- Hemiscopis cinerea*, Japan, *expansa*, Dharmasala, WARREN, p. 396, Ann. N. H. (6) ix, n. spp.
- Homœosoma canariella*, Canary Is., REBEL, p. 260, Ann. Hofmuseum Wien, vii; *H. delineata*, Brisbane, LUCAS, p. 266, P. Linn. Soc. N.S.W. (2) vii: n. spp.
- Hyaloplagia*, n. g., type *Hydrocampa pulchralis*, Moore; WARREN, p. 432, Ann. N. H. (6) ix.
- Hyalorista*, n. g., type *Rhodaria taniolalis*, Gn., with *H. imitans*, n. sp., S. Paolo; WARREN, Ann. N. H. (6) ix, p. 299.
- Hydrocampa nymphæata*, structure of larva, skin, breathing, habits, &c., discussed; MÜLLER, Zool. Jahrb. Syst. vi, pp. 617-622.
- Hypotomorpha*, n. g., near *Ancylolomia*, p. 252, for *H. lancerotella*, n. sp., Canary Is., p. 253, pl. xvii, figs. 4 & 5; REBEL, Ann. Hofmuseum Wien, vii.
- Lipographis subosseella*, Bahamas, HULST, p. 62, Canad. Ent. xxiv, n. sp.
- Loxocreon*, n. g., type *Salbia continuatalis*, Wllng.; WARREN, p. 432, Ann. N. H. (6) ix.
- Loxostege baccatalis*, Texas, HULST, p. 63, Canad. Ent. xxiv, n. sp.
- Melitera dentata*, metamorphoses; KELLOGG, Kansas Quart. i, p. 39, pl. viii.
- Mesographe juncialis*, Japan, WARREN, p. 434, Ann. N. H. (6) ix, n. sp.
- Mesothyris*, n. g., type *Botys aluensis*, Butl.; WARREN, p. 300, Ann. N. H. (6) ix.
- Metasia excavatalis*, Tunis, RAGONOT, p. 294, pl. iii, fig. 14, Deutsche e. Z. Lep. v, n. sp.
- Micractis*, n. g., type *Botys nubilalis*, Hb., with *M. sanguinealis*, n. sp., Japan; WARREN, p. 294, Ann. N. H. (6) ix.
- Mimoschinia*, n. g., type *Botys thalialis*, Wlk.; WARREN, p. 174, Ann. N. H. (6) ix.
- Mimudea*, n. g., p. 440, for *M. olivalis*, *subrosea*, S. Paolo, *flavinotata*, Rio Janeiro, n. spp., p. 441; WARREN, Ann. N. H. (6) ix.
- Monocona*, n. g., near *Tegostoma*, p. 173, for *M. rubralis*, n. sp., California; WARREN, Ann. N. H. (6) ix.
- Myelois flaveotincta*, Brisbane, LUCAS, p. 265, P. Linn. Soc. N.S.W. (2) vii; *M. fructetella*, *elegantella*, p. 59, *texanella*, *leucophæella*, p. 60, N. America, HULST, Canad. Ent. xxiv: n. spp.
- Nascia citrinalis*, Dharmasala, WARREN, p. 302, Ann. N. H. (6) ix, n. sp.
- Niphograptæ*, n. g., type *Epichronistis alboguttalis*, War.; WARREN, p. 399, Ann. N. H. (6) ix.

- Noctuelia flavifimbrialis*, California, WARREN, p. 174, Ann. N. H. (6) ix, n. sp.
- Notarcha exculta*, Brisbane, LUCAS, p. 262, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Notaspis*, n. g., type *Botys tranquillalis*, Led.; WARREN, p. 297, Ann. N. H. (6) ix.
- Nymphula sinuosa*, Brisbane, LUCAS, p. 261, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Ocala*, n. g., near *Dolichorrinia*, for *O. dryadella*, n. sp., Florida; HULST, p. 61, Canad. Ent. xxiv.
- Œdematophora cacaalis*, Brisbane, LUCAS, p. 306, P. Linn. Soc. N.S.W. (2) vi, n. sp.
- Opsibotys latipennis, ocellalis*, Japan, WARREN, p. 295, Ann. N. H. (6) ix, n. spp.
- Pachynoa limitata*, Borneo, WARREN, p. 395, Ann. N. H. (6) ix, n. sp.
- Pachyzancla dissimilis*, Accra, WARREN, p. 442, Ann. N. H. (6) ix, n. sp.
- Paralipsa decorella*, N. America, HULST, p. 63, Canad. Ent. xxiv, n. sp.
- Paraponyx*, sp. (Brazil), respiration of larva; MÜLLER, Zool. Jahrb. Syst. vi, p. 625.
- Pessocosma suffusalis*, Goya, WARREN, Ann. N. H. (6) ix, p. 390, n. sp.
- Pharambara sphoraria*, Khasia Hills, SWINHOE, p. 18, pl. i, fig. 17, Tr. E. Soc. 1892; *P. vinosa*, Borneo, BUTLER, p. 130, pl. vi, fig. 8, P. Z. S. 1892: n. spp.
- Phlyctænia ferruginealis, paolinalis, arenacea*, Rio de Janeiro, WARREN, p. 431, Ann. N. H. (6) ix, n. spp.
- Pindictora flavifrons*, Accra, WARREN, p. 172, Ann. N. H. (6) ix, n. sp.
- Prionopaltis*, n. g., p. 437, for *P. sericea*, Dharmasala, *consocia*, *P. ? suffusalis*, Japan, p. 438, n. spp.; WARREN, Ann. N. H. (6) ix.
- Prionophora torquesauria*, Brisbane, LUCAS, p. 255, P. Linn. Soc. N.S.W. (2) vii, n. sp.
- Prodasycnemis*, n. g., type *Botys inornata*, Butl.; WARREN, p. 301, Ann. N. H. (6) ix.
- Pygospila tyres*, n. var., *cuprealis*; SWINHOE, p. 19, pl. i, fig. 4, Tr. E. Soc. 1892.
- Pyrausta dorsipunctalis*, Canary Is., REBEL, p. 245, Ann. Hofmuseum Wien, vii; *P. straminea, violacea*, Queensland, LUCAS, p. 263, P. Linn. Soc. N.S.W. (2) vii; *P. coccineu*, California, WARREN, p. 176, Ann. N. H. (6) ix; *P. magdalena*, Florida, FERNALD, p. 122, Canad. Ent. xxiv; *P. nigralis*, Florida, FERNALD, p. 178, t. c.: n. spp.
- Ramila angustifimbrialis*, Burma, WARREN, p. 430, Ann. N. H. (6) ix, n. sp.
- Rhetocraspeda*, n. g., type *Botys periusalis*, Wlk.; WARREN, p. 439, Ann. N. H. (6) ix.
- Rhodoneura notula*, hab. ?, *R. ? tessellatula*, Philippines, PAGENSTECHER, p. 58, Deutsche e. Z. Lep. v (for other n. spp. of *Rhodoneura* see *Bombyces*, p. 246): n. spp.
- Salebria levigatella, purpurella*, N. America, HULST, p. 61, Canad. Ent. xxiv, n. spp.

- Scirpophaga intacta*, Java, SNELLEN, p. 343, pl. xviii, figs. 1-4, Tijdschr. Ent. xxxiv, n. sp.
- Semniomima* n. g. for *Hypocrita flaviceps*, Burm. ; WARREN, p. 172, Ann. N. H. (6) ix.
- Sericophora guttata*, figured, Romanoff Mem. vi, pl. xiv, fig. 14.
- Sericoplaga* n. g., near *Opsibotys*, p. 295, for *S. externalis*, n. sp., Texas, p. 296 ; WARREN, Ann. N. H. (6) ix.
- Sicul[od]idæ* : monographic revision of the group ; PAGENSTECHER, Deutsche e. Z. Lep. v, pp. 5-131, and Supplement to the revision, *id. t. c.* pp. 443-449.
- Siculodes* (?) *ignotalis*, Bonerate, RÖBER, p. 329, Tijdschr. Ent. xxxiv (fig. in xxxv) ; *S. pulchelloides*, Peru, p. 64, pl. i, fig. 4, *paullula*, Chiriqui, p. 65, *violalis*, Ecuador, Chiriqui, p. 69, *apicalis*, Peru, p. 70, *furcatula*, Cameroons, p. 71, pl. i, fig. 6, *erythralis*, Brazil, pl. i, fig. 17, *squamigera*, p. 72, *catenula*, p. 73, Natal, *anastomosalis*, Chiriqui, *albipunctula*, Peru, p. 76, *tristriata*, Montevideo, p. 77, *laevigata*, p. 78, *ferruginea*, p. 79, *S. (Zeuzerodes) leuconotula*, p. 80, pl. i, fig. 15, *fumatis*, p. 81, Chiriqui, *cervinalis*, p. 82, *selenioides*, p. 83, pl. i, fig. 14, Peru, *maculata*, p. 91, *straminula*, p. 92, *patercula*, p. 94, Brazil, *fratercula*, California, p. 95, *mirabilis*, Peru, p. 96, pl. i, fig. 10, *denticulata*, Chiriqui, p. 98, pl. i, fig. 12, *politula*, Philippines, p. 101, *rotundula*, Amazons, p. 107, pl. i, fig. 7, *polychloralis*, Chiriqui, p. 108, *nigropunctula*, Natal, p. 109, *quadripunctula*, Sumatra, p. 110, *flavula*, Gaboon, p. 111, *guttula*, Amazons, pl. i, fig. 11, p. 112, *rosacea*, Malacca, p. 119, pl. i, fig. 3, *corticina*, Borneo, p. 121, *triangularis*, Philippines, p. 122, *globulifera*, p. 123, PAGENSTECHER, Deutsche e. Z. Lep. v : n. spp.
- Spilodes bicoloralis*, Bagdad, WARREN, p. 178, Ann. N. H. (6) ix, n. sp.
- Stenochora*, n. g., type *Rhodaria lancinalis*, Gn. ; WARREN, p. 298, Ann. N. H. (6) ix.
- Stenomeles*, n. g., type *Botys agavealis*, Wlk. ; WARREN, p. 437, Ann. N. H. (6) ix.
- Striglina radiata*, Portorico, p. 41, *sordida*, Borneo, p. 47, PAGENSTECHER, Deutsche e. Z. Lep. v, n. spp.
- Syllythria* ? *rubrivena*, Madagascar, p. 176, *subnicalis*, California, p. 177, WARREN, Ann. N. H. (6) ix, n. spp.
- Tanaophysa*, n. g. for *T. adornatalis*, n. sp., S. Paolo ; WARREN, p. 389, Ann. N. H. (6) ix.
- Terastiodes*, n. g., type *Terastia ochracealis*, Wlk. ; WARREN, p. 298, Ann. N. H. (6) ix.
- Tetraphana alipes*, Amazons, p. 3, *lilacina*, Bolivia, p. 4, pl. i, fig. 2 (but p. 131 said to be *Euclia fenestrata*, Mén.) ; PAGENSTECHER, Deutsche e. Z. Lep. v, n. spp.
- Tholeria stigmosalis*, S. Paolo, WARREN, p. 429, Ann. N. H. (6) ix, n. sp.
- Trichauchenia*, n. g., type *Euclita dharmasala*, Butl. ; WARREN, p. 173, Ann. N. H. (6) ix.

- Trischistognatha*, n. g., type *Spilodes palindialis*, GIL.; WARREN, p. 429, Ann. N. H. (6) ix.
- Tritaea protealis*, Callao, *ferruginea*, Coquimbo, WARREN, p. 179, Ann. N. H. (6) ix, n. spp.
- Udea sabulosalis*, Coquimbo, p. 393, *indistinctalis*, N. America, *inhospitalis*, California, *nigripunctata*, Callao, p. 394, WARREN, Ann. N. H. (6) ix, n. spp.
- Varnia aurea*, Chiriqui, p. 32, pl. i, fig. 13, *incudigera*, p. 33, *ypsiloides*, p. 35, Java, PAGENSTECHER, Deutsche e. Z. Lep. v, n. spp.
- Zophodia bella*, Massachusetts, HULST, p. 61, Canad. Ent. xxiv, n. sp.
- Zeuserodes*, n. subg. of *Siculodes*, *q.v.*; PAGENSTECHER, p. 80, Deutsche e. Z. Lep. v.

## TORTRICIDÆ.

- [Cf. CHRÉTIEN (174), CONSTANT (182), FERNALD (280), MEYRICK (605), REBEL (715), RILEY (748, 749), SNELLEN (872), STAUDINGER (891).]
- Bactra lanceolana*, = (*Chiloides straminea*, Butl.) ; MEYRICK, p. 217, Tr. N. Z. Inst. xxiv.
- Cucæcia semiferana*, egg-clusters noticed ; GILLETTE, Canad. Ent. xxiv, p. 36. *C. rosana* and *parallela*, full-grown larvæ ; BEUTENMÜLLER, p. 80, Bull. Am. Mus. iv.
- C. magnoliana*, New York, FERNALD, p. 121, Canad. Ent. xxiv, n. sp.
- Carpocapsa saltitans*, determination of the plant ; RILEY, P. E. Soc. Wash. ii, pp. 178 & 213.
- Ditula woodiana*, habits ; WOOD, Ent. M. M. xxviii, p. 225.
- Doloploca buratica*, Siberia, STAUDINGER, p. 388, Deutsche e. Z. Lep. v, n. sp.
- Eupcecilia geyeriana* and larva figured ; RICHARDSON, P. Dorset Club, xiii, pl.
- Grapholitha carduana*, n. var. *subvittana* ; STAUDINGER, p. 299, Deutsche e. Z. Lep. v.
- G. kenteana*, Siberia, STAUDINGER, p. 390, Deutsche e. Z. Lep. v ; *G. schistaceana*, Java, SNELLEN, p. 353, pl. xix, figs. 5-7, Tijdschr. Ent. xxxiv ; *G. sebastianæ*, N. Mexico, RILEY, p. 214, P. E. Soc. Wash. ii : n. spp.
- Noteraula*, n. g. (*Grapholithidæ*), for *Chiloides straminea*, Meyr., nec Butler ; MEYRICK, p. 217, Tr. N. Z. Inst. xxiv.
- Pandemis simonyi*, Canary Is., REBEL, p. 263, pl. xvii, figs. 8 & 9, Ann. Hofmuseum Wien, vii, n. sp.
- Penthina oblongana*, n. var. *adelana* ; REBEL, p. 526, Verh. z.-b. Wien, xlii.
- Pyrgotis plinthoglypta*, New Zealand, MEYRICK, p. 218, Tr. N. Z. Inst. xxiv, n. sp.
- Sciaphila cinareana*, Carcassonne, CHRÉTIEN, Le Nat. 1892, p. 132, n. sp.
- Steganoptycha lindana*, Ontario, FERNALD, p. 178, Canad. Ent. xxiv, n. sp.

*Teras ferrugana*, metamorphoses, CHRÉTIEN, p. 240, Le Nat. 1892, n. sp.  
*T. comandrana*, N. America, FERNALD, p. 121, Canad. Ent. xxiv; *T. angusana*, N. America, FERNALD, p. 178, t. c. : n. spp.

## TINEIDÆ.

[*Cf.* CHAPMAN (164), CONSTANT (182), DURRANT (210), ERSCHOFF (779), FERNALD (280), LOWER (565), MEYRICK (605), RAGONOT (711), REBEL (715, 716), RILEY (741, 742, 743), STAUDINGER (891), WOOD (1014, 1015).]

Wing-neuration discussed; SPULER, Z. wiss. Zool. liii, pp. 626-635.

Tineid larva mining leaves of *Populus fremonti* described; TOWNSEND, Zoe, iii, pp. 234-236.

*Adela infantella*, figure, pl. xvi, fig. 3, Romanoff Mem. vi. *A. viridella*, oviposition of; CHAPMAN, Ent. M. M. xxviii, p. 42.

*Blastobasis mamorosella*, Woll., characters discussed; REBEL, p. 276, pl. xvii, fig. 6, Ann. Hofmuseum Wien, vii.

*Bucculatrix canadensisella*, metamorphoses; PACKARD, Ins. Life, v, p. 14, fig.

*Butalis sagittatella*, figure, pl. xvi, fig. 12, Romanoff Mem. vi.

*Cerostoma fulculella*, figure, pl. xvi, fig. 4, Romanoff Mem. vi.

*C. affinitella*, Siberia, STAUDINGER, p. 392, Deutsche e. Z. Lep. v, n. sp.

*Choreutis solaris*, figure, Romanoff Mem. vi, pl. xvi, fig. 1.

*Coleophora lativittella*, figure, pl. xvi, fig. 11, Romanoff Mem. vi.

*C. sylvaticella*, p. 118, *glaucicolella*, p. 172, England, WOOD, Ent. M. M. xxviii; *C. agrammella*, England, WOOD, t. c. p. 283; *C. confluenta*, Canary Is., REBEL, p. 278, pl. xvii, fig. 15, Ann. Hofmuseum Wien, vii : n. spp.

*Cryptophaga blackburnii*, *ochroleuca*, S. Australia, LOWER, p. 15, Tr. R. Soc. S. Austr. xv, n. spp.

*Depressaria multiplicella*, pl. xvi, fig. 5, *anticella*, fig. 6, figured, Romanoff Mem. vi. *D. doronicella*, metamorphoses; CONSTANT, Bull. Soc. Autun, iv, pp. 277-283.

*D. conciliatella*, Canary Is., REBEL, p. 272, pl. xvii, fig. 14, Ann. Hofmuseum Wien, vii, n. sp.

*Erechthias erebistis*, New Zealand, MEYRICK, p. 220, Tr. N. Z. Inst. xxiv, n. sp.

*Etiella zinckenella*, Tr., = (*madagascariensis*, Saalm., and *chrysoporella*, Meyr.); SNELLEN, p. 84, Tijdschr. Ent. xxxv.

*Gelechia anthyllidella*, = (*sparsiciliella*, Barrett); BARRETT, Ent. M. M. xxviii, p. 80. *G. gallædiplopappi*, larva noticed; FYLES, p. 34, Canad. Ent. xxiv. *G. cinctipunctella*, pl. xvi, fig. 7, *G. (Lita) melanotephrella*, fig. 8, *G. (Teleia) trijugella*, fig. 9, figured, Romanoff Mem. vi.

*Glyphipteryx magnatella*, figure, pl. xvi, fig. 10, Romanoff Mem. vi.

*Hyponomeuta gigas*, Canary Is.; REBEL, p. 271, pl. xvii, fig. 17, Ann. Hofmuseum Wien, vii, n. sp.

- Lampronia capitella*, life-history ; CHAPMAN, Ent. M. M. xxviii, p. 297.
- Lichenaula selenophora*, S. Australia, LOWER, p. 16, Tr. R. Soc. S. Austr. xv, n. sp.
- Lita solanella*, metamorphoses figured, Ins. Life, iv, p. 239.
- Nemophora dorsiguttella*, figure, pl. xvi, fig. 2, Romanoff Mem. vi.
- Palparia leucosta*, S. Australia, LOWER, p. 10, Tr. R. Soc. S. Austr. xv, n. sp.
- Phylomictis monochroma*, S. Australia, LOWER, p. 17, Tr. R. Soc. S. Austr. xv, n. sp.
- Prodoxus* : variation, habits, &c. ; RILEY, P. Biol. Soc. Washington, vii, pp. 96-99.
- P. pulverulentus*, p. 315, *y-inversus*, p. 316, *reticulatus*, p. 317, *coloradensis*, p. 318, *sordidus*, p. 319, N. America, RILEY, P. E. Soc. Wash. ii, n. spp.
- Pronuba*, and fertilisation of *Yucca* ; RILEY, P. Biol. Soc. Washington, vii, pp. 81, &c., woodcuts. *P.* (and *Prodoxus*), some anatomical peculiarities ; RILEY, P. E. Soc. Wash. ii, pp. 305-311 : maxillary tentacles ; SMITH, P. Am. Ass. xli, p. 198 : problematical larva ; TOWNSEND, Zoe, iii, p. 115.
- Pronuba synthetica*, Mojave Desert, RILEY, P. E. Soc. Wash. ii, p. 312, metamorphoses, with figg. : n. sp.
- Psecadia libyella*, Tunis, RAGONOT, p. lxxxii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Ptocheusa multistrigella*, Tunis, RAGONOT, p. lxxxii, Bull. Soc. Ent. Fr. lxi, n. sp.
- Sematocera*, n. g., near *Lasioctena*, p. 242, for *S. fuliginipuncta*, n. sp., Transvaal, p. 243, pl. iv, fig. 4 ; DURRANT in Distant, Naturalist Transvaal.
- Semiocosma caustopa, paraneura*, New Zealand, MEYRICK, p. 219, Tr. N. Z. Inst. xxiv, n. spp.
- Setomorpha discipunctella*, Canary Is., REBEL, p. 267, pl. xvii, fig. 16, Ann. Hofmuseum Wien, vii, n. sp.
- Staintonia fulgens*, figured, pl. xvi, fig. 13, generic position queried, p. 671, Romanoff Mem. vi.
- Swammerdamia apicella*, larva described ; ELISHA, Ent. M. M. xxviii, p. 257.
- Tinea merdella*, n. var. ? *immaculatella*, REBEL, p. 269, Ann. Hofmuseum Wien, vii, n. sp. ; *T. propulsatella*, Tyrol, REBEL, p. 527, Verh. z.-b. Wien, xlii ; *T. bipartitella*, Tunis, RAGONOT, p. lxxxii, Bull. Soc. Ent. Fr. lxi : n. spp.
- Tineola alutella*, Canary Is., REBEL, p. 270, pl. xvii, fig. 3, Ann. Hofmuseum Wien, vii, n. spp.
- Tineomima*, n. g. for *Tineola* ? (*T.*) *kenteella*, n. sp., Siberia ; STAUDINGER, p. 391, Deutsche e. Z. Lep. v.
- Trachypepla hieropis*, New Zealand, MEYRICK, p. 218, Tr. N. Z. Inst. xxiv, n. sp.
- Xylorycta leucophanes*, S. Australia, LOWER, p. 17, Tr. R. Soc. S. Austr. xv, n. sp.

## AGDISTIDÆ, PTEROPHORIDÆ

[*Cf.* HERING (401), MABILLE & VUILLOT (573), STAUDINGER (890).]

*Aciptilia tuneta*, Tunis, STAUDINGER, p. 300, Deutsche e. Z. Lep. v, n. sp.

*Atomopteryx doeri*, figured; MABILLE & VUILLOT, pl. xii, fig. 1, Nov. Lep.

*Gilbertia eques*, figured; MABILLE & VUILLOT, Nov. Lep. pl. xii, fig. 6.

*Mimæseoptilus pinarodactylus*, figure, pl. xvi, fig. 15, Romanoff Mem. vi.

*Ochyrotica fasciata*, figured; MABILLE & VUILLOT, pl. xii, fig. 2, Nov. Lep.

*Platyptilia terminalis*, figure, pl. xvi, fig. 14, Romanoff Mem. vi; *P. ochrodactyla*, *dichrodactyla*, *bertrami*, *borgmanni*, compilation of opinions as to distinctions of; HERING, pp. 269-277, S. E. Z. liii.

*Sochchora donatella*, figured; MABILLE & VUILLOT, pl. xii, fig. 5, Nov. Lep.

*Steganodactyla concursa*, pl. xii, fig. 3, *connexiva*, fig. 4, figured; MABILLE & VUILLOT, Nov. Lep.

*Uroloba fuscicostata*, figured; MABILLE & VUILLOT, Nov. Lep. pl. xii, fig. 8.

*Utuca ochracealis*, figured; MABILLE & VUILLOT, Nov. Lep. pl. xii, fig. 7.

(D.) *DIPTERA*.

[Cf. ALDRICH (5, 6), ARRIBALZAGA (15), BECKER (45), BERGROTH (61), BEZZI (79, 80), BIDENKAP (81), BIGOT (83-87), BLANCHARD (101, 102), BRAUER (116, 117, 118), BRAUER & BERGENSTAMM (119), CHOLODKOVSKY (171), COCKERELL (180), COQUILLET (185-190), GIGLIO-TOS (339-343), GUTHRIE (381), HENNEGUY & BINET (399), HUDSON (440), JENKINSON (456), KIEFFER (492-495), KOWARZ (512), LAMPA (537, 538), LIEBEL (562), MEADE (595, 596, 597), MEUNIER (602), MIK (606-610), MORTENSEN (627), MUGGENBURG (628), OSTEN-SACKEN (659-663), PORTSCHINSKY (698, 699), RILEY (753), REED (718), RÖDER (769, 770, 771), RÜBSAAMEN (784-787), SANGAGLI (791), SAWTSCHENKO (796), SNOW (877), STEIN (895, 896), STROBL (902-906), THEOBALD (919), THOMAS (924, 925), TÖMÖSVÁRY (929), TOWNSEND (931-944, 946, 947), TRYBOM (951), VERRALL (971), WEBSTER (990), WILLISTON (347, 1010, 1011), WULP (1019).]

Table of the N. American genera of *Nemocerous Diptera*; TOWNSEND, Tr. Am. Ent. Soc. xix, pp. 144-160.

Catalogue of *Diptera* of the Oriental Region; BIGOT (84).

A new spinning *Hilara*, cf. *H. æronetha*, *infra*.

## CECIDOMYIIDÆ.

Structure and mode of preparation of larvæ; THOMAS, pp. 356-358, Verh. z.-b. Wien, xlii.

General notes on the structure of larvæ of *Cecidomyiidae*; RÜBSAAMEN, Berl. Ent. Zeit. xxxvi, pp. 381-391, pl. xiv.

New *Cecidomyiid* galls; RÜBSAAMEN, pp. 403-406, Berl. Ent. Zeit. xxxvi.

Account of various *Cecidomyiid* galls; THOMAS (925).

Mode of preparing for collections, classification; RÜBSAAMEN, Berl. Ent. Zeit. xxxvii, pp. 319-341: Amended descriptions of many species; *id. t. c.* pp. 341-404.

*Asphondylia*, notes on the characters and species, KIEFFER, pp. 220-222, Wien. ent. Z. xi; *A. sarothamni*, Lw., and *bitensis*, Kieff., noticed, MIK, p. 184, Wien. ent. Z. xi; *A. cytisi*, *sarothamni*, *genistæ*, notes on, RÜBSAAMEN, pp. 59-61, Verh. z.-b. Wien. xlii.

*Asynapta citrina*, description amplified; KIEFFER, p. 264, Berl. Ent. Zeit. xxxvi.

- Cecidomyia rosaria*, descriptive note, p. 246, *salicina*, Schrank, synonymy, p. 247, *saliciperda*, Duf., descriptive note, p. 249, KIEFFER, Berl. Ent. Zeit. xxxvi; *C. vicie* gall, noticed and figured, MIK, p. 306, Wien. ent. Z. xi, pl. iii, figg. 1-3: sp. ? gall on *Thalictrum*, p. 307, fig. 4.
- C. praticola*, Bitsch, KIEFFER, p. 216, Wien. ent. Z. xi; *C. clavifex*, p. 241, *pulvini*, p. 244, *karschi*, p. 251, *medullaris*, p. 253, *dubia*, p. 255, Bitsch, KIEFFER, Berl. Ent. Zeit. xxxvi; *C. saxifragæ*, Bitsch, KIEFFER, p. 262, *t. c.*; *C. dulcamaræ*, p. 397, *kleini*, p. 398, *symphyti*, p. 399, *tetensi*, p. 400, *gemmæ*, p. 401, Germany, RÜBSAAMEN, *t. c.*: n. spp.
- Choristoneura*, n. g., for *obtusa*, Lw.; RÜBSAAMEN, p. 342, Berl. Ent. Zeit. xxxvii.
- Clinorrhyncha*, characters noticed; KIEFFER, p. 223, Wien. ent. Z. xi.
- Colomyia*, n. g. near *Epidosis*, for *C. clavata*, n. sp., Bitsch, KIEFFER, p. 259, Berl. Ent. Zeit. xxxvi.
- Cystiphora*, n. g. for a part of *Cecidomyia*, p. 213, including *C. pilosellæ*, n. sp., Bitsch, p. 213, KIEFFER, Wien. ent. Z. xi.
- Dichelomyia*, n. g. for a part of *Cecidomyia*; RÜBSAAMEN, p. 346, Berl. Ent. Zeit. xxxvii.
- Diplosis tritici*, ravages in Sweden; LAMPA (536).
- D. loewii*, p. 49, *rosiperda*, p. 54, Weidenau, *rhamni*, Germany, p. 57, RÜBSAAMEN, Verh. z.-b. Wien, xlii; *D. vorax*, p. 393, *necans*, p. 394, *pastinacæ*, p. 395, *solani*, p. 396, Germany, RÜBSAAMEN, Berl. Ent. Zeit. xxxvi; *D. coccidarum*, Jamaica, COCKERELL, Ent. xxv, p. 181: n. spp.
- Hormomyia hartigi*, Lorraine, LIEBEL, p. 285, Ent. Nachr. xviii; *H. rosenhaueri*, p. 394, *brunnea*, p. 396, Europe, RÜBSAAMEN, Berl. Ent. Zeit. xxxvii: n. spp.
- Lasioptera carophila*, ♂ and larva described; KIEFFER, Wien. ent. Z. xi.
- Macrolabis*, n. g. for a part of *Cecidomyia*, p. 214, including *M. marteli*, n. sp., Elbeuf, p. 215; KIEFFER, Wien. ent. Z. xi.
- Monarthropalpus*, n. g. for *flavus*, Schrank; RÜBSAAMEN, p. 381, Berl. Ent. Zeit. xxxvii.
- Rhopalomyia*, n. g. for species previously referred to *Cecidomyia* or *Hormomyia*; RÜBSAAMEN, pp. 370 & 375, Berl. Ent. Zeit. xxxvii.
- Schizomyia*, n. sp., larva noticed, p. 220, pl. i, fig. 8; *S. (sub Epidosis) nigripes*, Lw., larva described, KIEFFER, Wien. ent. Z. xi.

## MYCETOPHILIDÆ, SIMULIIDÆ, BIBIONIDÆ, BLEPHAROCERIDÆ.

- Blepharoceridæ*: synopsis of the described genera and species; OSTENSACKEN, Berl. Ent. Zeit. xxxvi, pp. 407-411.
- Bolitophila luminosa*, noticed, metamorphoses figured; HUDSON, Manual, p. 49, frontispiece.
- Calosia fusca*, Pavia, BEZZI, Bull. Ent. Ital. xxiv, p. 68, n. sp.

*Mycetophila antarctica*, New Zealand, HUDSON, Manual, p. 46, pl. iv, fig. 5, n. sp.

*Simulia columbacensis*, metamorphoses ; TÖMÖSVÁRY, Glasnik Naravosl. Druzt. vi, p. 187, &c., pl. ii.

*Pleciu concolor*, New Grenada, WULP, p. 197, Tijdschr. Ent. xxxiv, n. sp.

### CULICIDÆ, CHIRONOMIDÆ.

*Ceratopogon antipodum*, New Zealand, HUDSON, Manual, p. 45, pl. iv, fig. 4, n. sp.

*Chironomus*: *Mermis* larva in larva of ; TRYBOM, Ent. Tidskr. xiii, pp. 81-92.

*C. zealandicus*, New Zealand, HUDSON, Manual, p. 43, pl. iv, fig. 2, n. sp.

*Corethra antarctica*, New Zealand, HUDSON, Manual, p. 43, pl. iv, fig. 3, n. sp.

### TIPULIDÆ.

*Adelphomyia*, n. g. near *Limnophila*, for *A. helvetica*, n. sp., Switzerland ; BERGROTH, p. 134, MT. Ges. Bern. 1890.

*Dicranota brevitarsis*, p. 135, *brevicornis*, *longitarsis*, p. 136, Switzerland, BERGROTH, MT. Ges. Bern. 1890, n. spp.

*Gnophomyia tripudians*, Switzerland, BERGROTH, p. 131, MT. Ges. Bern. 1890, n. sp.

*Limnophila denticulata*, Switzerland, BERGROTH, p. 132, MT. Ges. Bern. 1890, n. sp.

*Orimargula*, Mik, is the same as *Antocha*, O.-S., the species discussed ; OSTEN SACKEN, pp. 313 [in error for 413]-416, Berl. Ent. Zeit. xxxvi.

*Pachyrhina immaculata*, Java, WULP, p. 196, Tijdschr. Ent. xxxiv, n. sp.

*Rhypholophus egenus*, Switzerland, BERGROTH, p. 131, MT. Ges. Bern. 1890, n. sp.

*Tipula bicornis*: habits, oviposition, WEBSTER, Bull. Dep. Agric. Ent. xxvi, pp. 66-70 ; *T. dispar* and *pagana*, distinctions of, DALE, Ent. M. M. xxviii, p. 310.

*T. saginata*, Switzerland, BERGROTH, p. 137, MT. Ges. Bern. 1890 ; *T. ornaticornis*, New Grenada, WULP, p. 195, pl. xii, fig. 1, Tijdschr. Ent. xxxiv ; *T. fumipennis*, New Zealand, HUDSON, Manual, p. 48, pl. v, fig. 2 : n. spp.

### XYLOPHAGIDÆ and STRATIOMYIIDÆ.

*Beris vallata*, mimics *Athalia* ; GIARD, p. 43, CR. Soc. Biol. (n.s.) iv.

*Dialysis disparilis*, spurs of tibia ; BERGROTH, p. 162, Wien. ent. Z. xi.

*Platyna hastata*, characters of ; RÖDER, p. 271, Wien. ent. Z. xi.

*Stratiomys longicornis*, histology of nervous system of larva ; HENNEGUY & BINET, Ann. Soc. Ent. Fr. lxi, pp. 309-316, pl. vi.

## TABANIDÆ.

- Atylotus letourneuxi*, Batna, p. 643, *camaronensis*, Madeira, *cereolus*, E. Africa, p. 644, *niveipalpis*, *ruficeps*, p. 645, *namaquinus*, p. 646, *zoulouensis*, S. Africa, *alazinus*, Caucasus, p. 647, *polyzonatus*, p. 648, *canipalpis*, Persia, *macer*, *albocostatus*, p. 649, *conicus*, p. 650, *melanopygatus*, *leucopogon*, p. 651, *angustus*, *oryceratus*, p. 652, *assamensis*, *birmanicus*, p. 653, *pagodinus*, *monilifer*, p. 654, *monotæniatus*, p. 655, *nephodes*, *leucocnematus*, p. 656, *joïdus*, *flaviventris*, p. 657, E. India, *fuscicauda*, Ceylon, *pallidepectoratus*, Saïgon, p. 658, *bituberculatus*, China ?, p. 659, *tenessensis*, *acutus*, N. America, *obesus*, p. 660, *erythræus*, p. 661, *fuscicrura*, Mexico, *picticornis*, Haïti, p. 662, *unipunctatus*, S. America, *rubescens*, Uruguay, p. 663, *euteniatus*, *malectectus*, p. 664, Brazil, *pulverulentus*, Cayenne, *aurisquammatus*, Brazil, p. 665, *indecisus*, p. 666, *simplex*, Amazons, *polytenia*, Buenos Ayres, p. 667, *erythrocephalus*, Panama, *andamanicus*, Andaman Is., p. 668, *cinerascens*, *lacrymans*, p. 669, *abbreviatus*, Java, *albonotatus*, New Caledonia, p. 670, *A. ? picticornis*, p. 671, *sonnerati*, *alfourensis*, p. 672, New Guinea, *laglaisei*, Waigiou, *avidus*, *rufinotatus*, p. 673, *hyperythreus*, p. 674, *sanguinarius*, *claripennis*, p. 675, *erraticus*, *rubrinotatus*, hab. ? p. 676, BIGOT, Mém. Soc. Zool. iv, n. spp.
- Bellardia sinica*, China, p. 629, *annamita*, Saïgon, *rubribarbis*, S. America, p. 630, *furcata*, hab. ?, p. 631, BIGOT, Mém. Soc. Zool. v, n. spp.
- Bolbodimyia*, n. g. for *B. bicolor*, n. sp., Venezuela, BIGOT, p. 162, Wien. ent. Z. xi; see also RÖDER, t. c. p. 237.
- Chrysops iranensis*, Persia, *cinctus*, Philippines, p. 602, *atricornis*, p. 603, *nigriventris*, p. 604, *coloradensis*, p. 605, N. America, *oculatus*, Brazil, p. 606, *trimaculatus*, Senegal, p. 607, BIGOT, Mém. Soc. Zool. v, n. spp.
- Corizoneura annulata*, S. Europe ?, p. 612, *albifrons*, p. 613, *brachyrhyncha*, Cape Good Hope, *nigricornis*, Australia, p. 614, *ruficornis*, *velutina*, p. 615, California, *leucopicta*, New Caledonia, *trichocera*, p. 616, *rubiginosa*, *C. ? angusta*, p. 617, Australia, BIGOT, Mém. Soc. Zool. v, n. spp.
- Dasybasis tristis*, Chili, BIGOT, p. 621, Mém. Soc. Zool. v, n. sp.
- Diachlorus barbatus*, Piedmont, p. 622, *maroccanus*, Marocco, *notatus*, California, p. 623, *D. ? hæmatopotides*, N. America, p. 624, *D. melas*, Sydney, p. 625, BIGOT, Mém. Soc. Zool. v, n. spp.
- Diatomineura californica*, California, p. 618, *hirtipalpis*, Chili, *carnea*, p. 619, *D. ? gagantina*, p. 620, Australia, BIGOT, Mém. Soc. Zool. v, n. spp.
- Dichælacera pachypalpus*, Mexico, p. 631, *japonica*, Japan, *satanica*, p. 632, *castanea*, *albopicta*, p. 633, *marmorata*, p. 634, Brazil, *peruviana*, p. 635, Peru, BIGOT, Mém. Soc. Zool. v, n. spp.
- Erephosis vertebrata*, Australia, BIGOT, p. 618, Mém. Soc. Zool. v, n. sp.
- Goniops*, n. g., p. 236, for *G. hippoboscoides*, n. sp., Dakota, p. 237, ALDRICH, Psyche, vi.

- Hæmatopota* : the species tabulated last year now described ; BIGOT, pp. 626-629, *Mém. Soc. Zool.* v.
- Mesomyia* ? *maeriorum*, New Zealand, BIGOT, p. 621, *Mém. Soc. Zool.* v, n. sp.
- Mycteromyia nigrifacies*, India, p. 607, *ensata*, *elegans*, Cape Good Hope, p. 608, *nitens*, p. 609, *penicillata*, Brazil, *cinerascens*, Chili, p. 610, *albipectus*, p. 611, *erythronotata*, p. 612, Brazil, BIGOT, *Mém. Soc. Zool.* v, n. spp.
- Pangonia bricchettii*, Somaliland, BEZZI, p. 181, *Ann. Mus. Genov.* (2) xii; *P. bahiana*, Brazil, BIGOT, p. 612, *Mém. Soc. Zool.* v : n. spp.
- Selasoma tibialis*, note on ; RÖDER, p. 237, *Wien. ent. Z. xi.*
- Silvius bicolor*, Marocco, BIGOT, p. 625, *Mém. Soc. Zool.* v, n. sp.
- Stibasoma pachycephalum*, Mexico, *bicolor*, Brazil, BIGOT, p. 636, *Mém. Soc. Zool.* vi, n. spp.
- Tabanus swiridowi*, figured, pl. i, fig. 2, *Hor. Ent. Ross.* xxvi.
- T. lama*, Mongolia, PORTSCHINSKY, p. 201, *Hor. Ent. Ross.* xxvi ; *T. yulensis*, New Guinea, RÖDER, p. 244, *S. E. Z.* liii ; *T. oritensis*, Caucasus, p. 677, *glaber*, India, *yokoamensis*, Japan, p. 678, *nitidulus*, *rufocallosus*, Java, p. 679, *leonum*, Sierra Leone, p. 680, *fuscipalpis*, *tetropsis*, p. 681, N. America, *sexcittatus*, Mexico, p. 682, *atricornis*, S. America, *pruinus*, Mexico, p. 683, *villosulus*, California, *discifer*, Amazons, p. 684, *venosus*, p. 685, *callicera*, *albidocinctus*, p. 686, *macroceratus*, Brazil, *erythraus*, La Plata, p. 687, *lunulatus*, p. 688, Australia, *lifuensis*, Lifu Is., *indistinctus*, p. 689, *raffreyi* (*sic*), p. 690, New Guinea, BIGOT, *Mém. Soc. Zool.* v : n. spp.
- Therioplectes æthereus*, Europe ?, *trichocerus*, p. 637, *fezianus*, p. 638, Marocco, *batnensis*, *calopis*, p. 639, Batna, *leucophorus*, p. 640, *maculifer*, *hirtulus*, p. 641, N. America, *limbatus*, Buenos Ayres, *T. ? melanorhinus*, N. America, p. 642, BIGOT, *Mém. Soc. Zool.* v, n. spp.
- Veprius rufopilosus*, Chili, BIGOT, p. 620, *Mém. Soc. Zool.* v, n. sp.

#### NEMESTRINIDÆ and BOMBYLIIDÆ.

- Classification of *Bombyliidæ*, with table of genera ; BIGOT, pp. 321-342, *Ann. Soc. Ent. Fr.* lxi.
- Acreotrichus inappendiculatus*, Australia, BIGOT, p. 366, *Ann. Soc. Ent. Fr.* lxi, n. sp.
- Amictus auripilus*, N. America, p. 372, *cinerascens*, Chili, p. 373, BIGOT, *Ann. Soc. Ent. Fr.* lxi, n. spp.
- Anthrax* : revision of the N. American species, with notes, synonymy, and tables ; COQUILLETT, *Tr. Am. Ent. Soc.* xix, pp. 168-187.
- A. tangerinus*, Marocco, p. 353, *aurocinctus*, Senegal, *fissus*, N. America, p. 354, *eurhinatus*, Mexico, *ruficollis*, Venezuela, p. 355, *bifenestratus*, California, *unicinctus*, p. 356, *bipenicillatus*, *obscuripes*, p. 357, *melanogaster*, *pallipes*, *micromelas*, p. 358, Chili, BIGOT, *Ann. Soc. Ent. Fr.* lxi ; *A. nitidofasciatus*, Central Asia, PORTSCHINSKY, p. 208, pl. i, fig. 5, *Hor. Ent. Ross.* xxvi ; *A. muscaria*, p. 178, *pretiosa*, *vacans*,

- p. 179, *cinefacta*, p. 180, *inculta*, *terrena*, *squamigera*, p. 181, *gemella*, *hircina*, *telluris*, p. 182, *vulpina*, *crocina*, p. 183, *tantilla*, *variata*, *vasta*, p. 184, *lacunaris*, *fenestratoïdes*, p. 185, *sabulosa*, p. 186, *arenosa*, p. 187, N. America, COQUILLETT, Tr. Am. Ent. Soc. xix : n. spp.
- Apiomidas*, n. g. near *Rhaphiomidas*, for *A. trochilus*, n. sp., California ; COQUILLETT, p. 314, Canad. Ent. xxiv.
- Argyromæba appendiculata*, Pondichery, *varicolor*, p. 347, *melanopogon*, *albosparsa*, N. America, p. 348, *aterrima*, no locality, *acroleuca*, China ?, *crinita*, p. 349, *plurinota*, p. 350, Chili, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.
- Bombylius nigropenicillatus*, Asia Minor, *fulvipes*, *albosparsus*, Pondichery, p. 352, *albopenicillatus*, Mexico, *laticeps*, p. 363, *cinereus*, California, *ochraceus*, Monte Video, *australianus*, p. 364, *rubriventris*, p. 365, Sydney, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.
- Comptosia fulvipes*, Australia, BIGOT, p. 359, Ann. Soc. Ent. Fr. lxi ; *C. virida*, New Zealand, HUDSON, Manual, p. 55, pl. vi, fig. 3 : n. spp.
- Conophorus mauritanicus*, p. 360, Algeria, *melanoceratus*, California, p. 361, BIGOT, Ann. Soc. Ent. Fr. lxi, n. sp.
- Dischistus cygnus*, *leucophys*, Cape Good Hope, p. 368, *melanurus*, Natal, *fuscipes*, N. America, p. 369, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.
- Eclimus venosus*, Europe ?, BIGOT, p. 371, Ann. Soc. Ent. Fr. lxi, n. sp.
- Epacmus rufolimbatus*, California, BIGOT, p. 359, Ann. Soc. Ent. Fr. lxi ; *E. concinnus*, *pellucidus*, *fumosus*, California, LYMAN, pp. 10 & 11, Canad. Ent. xxiv : n. spp.
- Eurycarenus* ? *pachyceratus*, Cape Good Hope, BIGOT, Ann. Soc. Ent. Fr. p. 371, n. sp.
- Ecoprosope* : characters of some N. American ; COQUILLETT, p. 123, Canad. Ent. xxiv.
- E. herzi*, Korea, PORTSCHINSKY, p. 207, pl. i, fig. 4, Hor. Ent. Ross. xxvi ; *E. vitrea*, Pondichery, *melanura*, N. America, p. 344, *pallens*, California, p. 345, *bipartita*, Colombia, *latelimbata*, Australia, p. 346, BIGOT, Ann. Soc. Ent. Fr. lxi ; *E. grata*, California, COQUILLETT, p. 124, Canad. Ent. xxiv : n. spp.
- Geron cothurnatus*, Tasmania, *dicroma*, Cape Good Hope ?, BIGOT, Ann. Soc. Ent. Fr. lxi ; *G. fasciola*, p. 125, *capax*, p. 126, California, COQUILLETT, Canad. Ent. xxiv : n. spp.
- Glossista costata*, Amazons, *multicolor*, Chili, p. 352, *lipposa*, Sydney, p. 353, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.
- Hemipenthes castanipes*, p. 350, *latelimbatus*, p. 351, N. America, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.
- Heterostylum pallipes*, Haïti, BIGOT, p. 361, Ann. Soc. Ent. Fr. lxi, n. sp.
- Hyperalonia flavosparsa*, Brazil, *argenticincta*, Australia, BIGOT, p. 343, Ann. Soc. Ent. Fr. lxi, n. spp.
- Nemestrina bombiformis*, Caucasus, PORTSCHINSKY, p. 203, pl. i, fig. 3, Hor. Ent. Ross. xxvi, n. sp.
- Phthiria tristis*, *pallipes*, Chili, BIGOT, p. 367, Ann. Soc. Ent. Fr. lxi, n. spp.

- Sparnopolius limbatus*, Australia, BIGOT, p. 370, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Spogostylum* ? *inappendiculatum*, Chili, description, BIGOT, p. 351, Ann. Soc. Ent. Fr. lxi, ? n. sp.  
*Systæchus eupogonatus*, E. India, p. 365, *eulabiatus*, Tasmania, p. 366, BIGOT, Ann. Soc. Ent. Fr. lxi, n. spp.  
*Systropus calopus*, Chili, BIGOT, p. 373, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Thevenetimyia melanopogon*, N. America, BIGOT, p. 370, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Usia gagathea*, Algeria, BIGOT, p. 374, Ann. Soc. Ent. Fr. lxi, n. sp.

## ASILIDÆ.

- Additions and corrections to Williston's Catalogue of S. American ; OSTEN-SACKEN, Berl. Ent. Zeit. xxxvi, pp. 417-428.  
*Apiocerina*, aberrant group of *Asilidæ* discussed and defined ; OSTEN-SACKEN, Berl. Ent. Zeit. xxxvi, pp. 311-315.  
*Apogon dufourii*, Perr., synonymical note ; RÖDER, p. 248, Ent. Nachr. xviii.  
*Brachyrrhopala victoriæ*, Australia, RÖDER, p. 241, S. E. Z. liii, n. sp.  
*Chrysopogon mulleri*, Victoria, RÖDER, p. 243, S. E. Z. liii, n. sp.  
*Lophonotus dubius*, Somaliland, BEZZI, p. 187, Ann. Mus. Genov. (2) xii, n. sp.  
*Mochtherus striatus*, Java, WULP, p. 198, pl. xii, figg. 3-6, Tijdschr. Ent. xxxiv, n. sp.  
*Philodicus pavesii*, Somaliland, BEZZI, p. 185, Ann. Mus. Genov. (2) xii, n. sp.  
*Promachus leucotrichodes*, p. 210, *tristis*, p. 211, Mahé, BIGOT, Bull. Soc. Z. Fr. 1892, n. spp.  
*Saropogon luctuosum*, n. var. *ticinense* ; BEZZI, p. 107, Bull. Ent. Ital. xxiv.

## LEPTIDÆ, THEREVIDÆ, EMPIDÆ.

- Chamædipsia*, diagnosis corrected ; MIK, p. 55, Wien. ent. Z. xi.  
*Hilara*, monographic revision of the Central European species ; STROBL, Verh. z.-b. Wien. xlii, pp. 85-182.  
*H. æronetha*, p. 81, *novakii*, p. 83, S.E. Europe, MIK, Wien. ent. Z. xi ;  
*H. pseudochorica*, p. 109, *lasiochira*, p. 110, *hystrix*, p. 112, *bivittata*, p. 113, *quadrifaria*, *pectinipes*, p. 116, *andermattensis* (subsp. of *longevittata*), *simplicipes*, p. 119, *tyrolensis*, p. 121, *sulcitaris*, p. 123, *diversipes*, p. 125, *dimidiata*, p. 128, *angustifrons*, p. 133, *braueri*, p. 135, *argyrosoma*, p. 136, *lacteipennis*, p. 137, *hirta*, p. 141, *beckeri*, p. 143, *carinthiaca*, p. 144, *tiefii*, p. 150, *pseudosartrix*, p. 152, *cinereomicans*, p. 156, *mikii*, p. 158, *discolor*, p. 165, *pilosopectinata*, p. 169, Central Europe, STROBL, Verh. z.-b. Wien. xlii : n. spp.  
*Leptis*, attacking man ; LEPREVOST & GAZAGNAIRE, pp. clv & clvi, Bull. Soc. Ent. Fr. lxi.

- L. subpilosa*, Switzerland, BECKER, p. 23, Wien. ent. Z. xi, n. sp.  
*Ptiolina*, Schin. nec Zett., to be replaced by *Symphoromyia*, Frauenf.;  
 STROBL, p. 123, Wien. ent. Z. xi.  
*Spania*: notes on the genus and its species; *Ptiolina*, Zett., merged in it;  
 STROBL, pp. 121-125, Wien. ent. Z. xi.  
*Steleocheta meridionalis*, n. n. for *stiriensis*, Beck.; BECKER, p. 126, Wien.  
 ent. Z. xi.

## DOLICHOPODIDÆ.

- Achalcus scutellaris*, Java, WULP, p. 202, Tijdschr. Ent. xxxiv, n. sp.  
*Bathycranium*, n. g. for *Dolichopus bicolorellus*, Zett.; STROBL, p. 102,  
 Wien. ent. Z. xi.  
*Campsicnemus thalhammeri*, Austria, STROBL, p. 106, Wien. ent. Z. xi,  
 n. sp.  
*Chrysotus nigricilius*, Loew., referred to *Melanostolus*; STROBL, p. 105,  
 Wien. ent. Z. xi.  
*Coracocephalus*, n. g. near *Eucoryphus*, p. 279, for *C. stroblii*, n. sp., Alps  
 of Steiermark, p. 281; MIK, Wien. ent. Z. xi.  
*Dolichopus bicingulatus*, Zett., referred to *Gymnopternus*, and characterized;  
 STROBL, p. 103, Wien. ent. Z. xi.  
*Lyroneurus chalybæus*, Ecuador, RÖDER, p. 81, Soc. Ent. vii, n. sp.  
*Psilopus fenestratus*, p. 200, pl. xii, fig. 6, *bifilum*, p. 201, *setosus*, p. 202,  
 Java, WULP, Tijdschr. Ent. xxxiv, n. spp.  
*Sphyrrotarsus hygrophilus*, characters amended; BECKER, p. 126, Wien.  
 ent. Z. xi.  
*Thrypticus divisus*, ♂ described; STROBL, p. 105, Wien. ent. Z. xi.

## SYRPHIDÆ.

- Synonymical and critical notes on the *Syrphidæ* of Biol. Centr. Am.  
*Dipt.*  
*Argentinomyia grandis*, Argentine Rep., ARRIBALZAGA, p. 255, An. Soc.  
 Arg. xxxiv, n. sp.  
*Asemosyrphus olivaceus, griseus, impurus*, Mexico, GIGLIO-TOS, p. 6, Boll.  
 Mus. Zool. Tor. vii, No. 123, n. spp.  
*Baccha clavata*, synonyms of; WILLISTON, p. 145, Ent. News, iii.  
*B. spatulata*, Mexico, GIGLIO-TOS, p. 4, Boll. Mus. Zool. Tor. vii, No. 132,  
 n. sp.  
*Brachyopa cynops*, Colorado, SNOW, Kansas Quart. i, p. 37, pl. vii, fig. 2,  
 n. sp.  
*Callicera montensis*, Colorado, SNOW, Kansas Quart. i, p. 34, pl. vii, fig. 4,  
 n. sp.  
*Camerania*, n. g. for *Temnocera megacephala*, Loew.; GIGLIO-TOS, Boll.  
 Mus. Zool. Tor. vii, No. 117.  
*Ceria verralli*, Panama, p. 75, *meadei*, pl. ii, fig. 12, *schnablei*, p. 76, *berg-*  
*rothi*, p. 77, Mexico, WILLISTON, Biol. Centr. Am. Dipt. iii.  
*Ceriogaster auricaudata*, Mexico, WILLISTON, p. 73, pl. ii, fig. 10, Biol.  
 Centr. Am. Dipt. iii, n. sp.

- Chilosia aurotecta*, Mexico, GIGLIO-TOS, p. 4, Boll. Mus. Zool. Tor. vii, No. 132, n. sp.
- Chrysotoxum derivatum*, variation; SNOW, Kansas Quart. i, p. 34.
- Copestylum parvum*, simile, Mexico, GIGLIO-TOS, p. 2, Boll. Mus. Zool. Tor. vii, No. 123, n. spp.
- Crioprora arcophiloides*, Mexico, GIGLIO-TOS, p. 7, Boll. Mus. Zool. Tor. vii, No. 123, n. sp.
- Criorhinia coquillettii*, California, WILLISTON, p. 145, Ent. News, iii, n. sp.
- Eristalis alpinus*, n. var. *caucasicus*; PORTSCHINSKY, p. 209, pl. i, fig. 6, Hor. Ent. Ross. xxvi. *E. vinetorum*, *albifrons*, *scutellaris*, complex synonymy; WILLISTON, p. 146, Ent. News, iii.
- E. bombusoides*, p. 4, *trilimbatus*, *præclarus*, *clarissimus*, *sallei*, p. 5, *triangularis*, p. 6, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 123; *E. sumichrasti*, *atropos*, Mexico, GIGLIO-TOS, p. 1, t. c. No. 132; *E. persa*, p. 58, *circe*, p. 59, pl. ii, fig. 3, *trigonus*, p. 61, fig. 4, *æmulus*, pl. ii, fig. 5, *minutalis*, fig. 6, p. 64, Central America, WILLISTON, Biol. Centr. Am. Dipt. iii: n. spp.
- Helophilus mexicanus*, variation noticed, and synonymy; WILLISTON, p. 68, Biol. Centr. Am. Dipt. iii.
- Lycastirrhyncha nitens*, Big., redescribed; WILLISTON, p. 66, Biol. Centr. Am. Dipt. iii.
- Mallota*? *championi*, p. 69, *margarita*, pl. ii, fig. 7, *smithi*, fig. 8, p. 70, Mexico, WILLISTON, Biol. Centr. Am. Dipt. iii, n. spp.
- Megametopon*, Giglio-Tos, = (*Ophromyia*, Will.); WILLISTON, p. 79, Biol. Centr. Am. Dipt. iii.
- Melanostoma stegnum*, Say, = (*tigrina*, O. Sack.); WILLISTON, p. 145, Ent. News, iii.
- M. elegans*, p. 2, *bellum*, p. 3, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 132, n. spp.
- Mesogramma rombicum*, *diversum*, *ciliatum*, p. 3, *comma*, p. 4, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 132, n. spp.
- Mesograptia willistonii*, Argentine Rep., ARRIBALZAGA, An. Soc. Arg. xxxiii, p. 54, n. sp.
- Microdon*: oviposition in ants' nest; VERHOEFF, p. 13, Ent. Nachr. xviii.
- M. megalogaster*, Colorado, SNOW, Kansas Quart. i, p. 34, pl. vii, fig. 1; *M. aquilinus*, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 123, p. 2: n. spp.
- Milesia pulchra*, Guatemala, WILLISTON, p. 74, pl. ii, fig. 11, Biol. Centr. Am. Dipt. iii, n. sp.
- Mirogaster dimidiata*, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. No. 123, p. 1, n. sp.
- Nausigaster bonariensis*, S. America, ARRIBALZAGA, p. 254, An. Soc. Arg. xxxiv, n. sp.
- Ocyptamus trigonus*, Wied., = (*Baccha torva*, Willist.); WILLISTON, p. 146, Ent. News, iii.
- Omegasyrphus*, distinctions from *Microdon*; GIGLIO-TOS, Boll. Mus. Zool. Tor. No. 118.

- Phalacromyia albitarsis*, Argentine Rep., ARRIBALZAGA, p. 244, An. Soc. Arg. xxxiv, n. sp.
- Platynochaetus niger*, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 123, p. 6, n. sp.
- Promilesia*, n. g., *Eristalini*, p. 241, for *P. nectarinoides*, n. sp., Argentine Rep. p. 243, ARRIBALZAGA, An. Soc. Arg. xxxiii.
- Fsilota*, habits and systematic position; MIK, p. 183, Wien. ent. Z. xi.
- Rhopalosyrphus*, = (*Holmbergia*, Arribalz.); GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 118.
- Salpingogaster nova*, Mexico, GIGLIO-TOS, p. 7, Boll. Mus. Zool. Tor. vii, No. 123, n. sp.
- Sphærophoria syrphica*, Mexico, GIGLIO-TOS, p. 2, Boll. Mus. Zool. Tor. vii, No. 132, n. sp.
- Syrphus paucillus*, ♀ described; SNOW, Kansas Quart. i, p. 37.
- S. ruficauda*, Colorado, SNOW, Kansas Quart. i, p. 36, pl. vii, fig. 3;  
*S. lautus, saussurii*, Mexico, GIGLIO-TOS, p. 2, Boll. Mus. Zool. Tor. vii, No. 132; *S. patagonus*, p. 115, *walkeri*, p. 117, Patagonia, ARRIBALZAGA, An. Soc. Arg. xxxiii : n. spp.
- Temnocera spinithorax*, Argentine Rep., BERG, p. 190, An. Soc. Arg. xxxiii, n. sp.
- Tropidia insularis*, Parana, ARRIBALZAGA, p. 238, An. Soc. Arg. xxxiii, n. sp.
- Ubristes chrysopyga*, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. No. 123, p. 1, n. sp.
- Volucella pallens*, Wied., = (*secpunctata*, Loew.); WILLISTON, p. 146, Ent. News, iii.
- V. omochroma, furens, craverii*, p. 2, *flavissima, minima, dichroica, trigona, hyaloptera, hirsuta*, p. 3, *hispida, volucris, hystrix, brevis, obesoides*, p. 4, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 123; *V. testacea*, Curaçoa, WULF, p. 203, Tijdschr. Ent. xxxiv; *V. ambrosettii*, p. 179, *obscuripennis*, p. 180, *missionera, picturata*, p. 184, Argentine Rep., BERG, An. Soc. Arg. xxxiv : n. spp.
- Xiphophomyia*, n. g., Bigot, for *X. glossata*, n. sp., E. India, BIGOT, p. 161, Wien. ent. Z. xi.
- Xylota angustiventris*, Lw., = (*elongata*, Willist.); WILLISTON, p. 146, Ent. News, iii.
- X. rufipes, paucilla*, pl. ii, fig. 9, p. 71, *brachygaster, stenogaster*, p. 72, Mexico, WILLISTON, Biol. Centr. Am. Dipt. iii, n. spp.

### ÆSTRIDÆ.

Historical, critical, and descriptive review of the larvæ of *Æstrides* that are known to attack man in America; BLANCHARD, Ann. Soc. Ent. Fr. lxi, pp. 109-154, and Bull. Soc. Ent. Fr. lxi, p. ccix.

*Cephenomyia* and *Hypoderma*: note on the unknown stage in the larval history; BRAUER, pp. 79-84, Verh. z.-b. Wien, xlii.

- Cuterebra*, larva from *Lepus artemisia* ? described ; TOWNSEND, Psyche, vi, p. 299.
- Dermatobia* sp. from *Lepus callotis* described ; TOWNSEND, Psyche, vi, p. 299.
- Dermatæstrus*, n. g., with *strepsicerontis*, n. sp. from *Strepsiceros capensis*, S. Africa ; BRAUER, p. 12, pl. i, fig. 1, SB. Ak. Wien, ci.
- Gastrophilus nasalis* : habits ; TOWNSEND, p. 227, Ent. News, iii.
- Hypoderma lineata* : habits and larva described ; RILEY, Ins. Life, iv, pp. 302-317.
- Æstrus* attacking man, SANGAGLI (791) ; *Æ. ovis* attacking *Capra hircus*, BLANCHARD, p. cccxvi, Bull. Soc. Ent. Fr. lxi.
- Æ. perplexus*, New Zealand, HUDSON, Manual, p. 63, pl. vii, fig. 12, n. sp.
- Strobilæstrus*, n. g., with *S. antilopinus*, n. sp., from Antelopes in Transvaal ; BRAUER, p. 10, pl. i, fig. 2, SB. Ak. Wien, ci.
- Tachinæstrus semenowi*, note on ; PORTSCHINSKY, p. 209, Hor. Ent. Ross. xxvi.

## CONOPIDÆ, PIPUNCULIDÆ, PLATYPEZIDÆ.

- Brachycercæ*, n. g., for *Conops brevicornis*, Loew. ; RÖDER, p. 366, Ent. Nachr. xviii.
- Callomyia bella*, Mexico, WILLISTON, p. 89, Biol. Centr. Am. Dipt. iii, n. sp.
- Conops carbonarius*, *nigrifacies*, *ochreiceps*, Bigot, redescribed and referred to *Physocephala* ; WILLISTON, pp. 82 & 83, Biol. Centr. Am. Dipt. iii.
- C. ornatus*, Mahé, BIGOT, p. 211, Bull. Soc. Z. Fr. 1892 ; *C. magnus*, p. 43, *grandis*, *rufus*, *augustifrons*, p. 44, *nobilis*, *inornatus*, p. 45, *ornatus*, *parrus*, p. 46, Chapada, Brazil, WILLISTON, Kansas Quart. i ; *C. ocellatus*, Mexico, GIGLIO-TOS, Boll. Mus. Zool. Tor. vii, No. 132 ; *C. discalis*, *anthreas*, *sequax*, Mexico, WILLISTON, Biol. Centr. Am. Dipt. iii : n. spp.
- Dalmannia vitiosa*, California, COQUILLET, p. 150, Ent. News, iii, n. sp.
- Physocephala sororcula*, *xanthops*, Mexico, WILLISTON, p. 83, Biol. Centr. Am. Dipt. iii ; *P. maxima*, Mexico, GIGLIO-TOS, p. 5, Boll. Mus. Zool. Tor. vii, No. 132 : n. spp.
- Pipunculus elegantulus*, *flavitaris*, *xanthopodus*, p. 87, *aculeatus*, *flavicornis*, p. 88, Mexico, WILLISTON, Biol. Centr. Am. Dipt. iii, n. spp.
- Stylogaster* : notes on and characters of the species ; RÖDER, p. 286, Wien. ent. Z. xi.
- Zodion auricaudatum*, Mexico, WILLISTON, p. 85, pl. ii, fig. 14, Biol. Centr. Am. Dipt. iii, n. sp.

## MUSCIDÆ CALYPTRATÆ.

- Biology of coprophagous and necrophagous *Diptera* (in Russian) ; PORTSCHINSKY, Hor. Ent. Ross. xxvi, pp. 63-131.
- Table of the genera of N. American *Calyptrate Muscidæ* ; TOWNSEND pp. 133-144, Tr. Am. Ent. Soc. xix.

BRAUER & BERGENSTAMM, Denk. Ak. Wien, lviii, pp. 305-446, have revised their work, published two years ago, on *Muscaria schizometopa*, making a large number of alterations and additions: these latter we give on pp. 298-301, in the order followed by the authors; the taxonomical and synonymical changes involved by this memoir must be sought in the pages of the work itself. It concludes with two very useful lists of the whole of the genera and groups, and of the species, 1520 in number, examined.

*Acyglosa diversa*, Rond., = (*Anthomyia corvina*, Loew.) ; RÖDER, Ent. Nachr. xviii, p. 366.

*Anisia vanderwulpi*, Jamaica, TOWNSEND, p. 81, Ent. News, iii, n. sp.

*Anthomyiidae*: study of the *Anthomyiid* types in the Fallen-Zetterstedt collection at Lund, STEIN, Ent. Nachr. xviii, pp. 321-333; Synopsis of the N. American genera, TOWNSEND, pp. 290-293, Tr. Am. Ent. Soc. xix.

*Aricia* parasitic in *Carabus*; GIGLIO-TOS (339, 340).

*Aphria angustifrons*, England, MEADE, p. 114, Wien. ent. Z. xi, n. sp.

*Aporia limacodis*, New York, TOWNSEND, Psyche, vi, p. 275, n. sp.

*Atropharista*, n. g. *Hystriiinae*, for *A. jurinoides*, n. sp., Dakota; TOWNSEND, p. 92, Tr. Am. Ent. Soc. xix.

*Atrotrophalpus*, n. g., *Phytoinae*, p. 130, for *A. angusticornis*, n. sp., Florida, p. 131; TOWNSEND, Ent. News, iii.

*Blepharipeza exul*, New Hampshire, TOWNSEND, p. 64, Canad. Ent. xxiv;

*B. rufescens*, Maryland, TOWNSEND, p. 90, Tr. Am. Ent. Soc. xix;

*B. nigrisquamis*, Jamaica, TOWNSEND, p. 80, Ent. News, iii: n. spp.

*Brachycælia*, n. g., for *Scopolia ocypterina*, Zett.; MEADE, p. 260, Ent. M. M. xxviii.

*Brachycoma smerinthi*, England, MEADE, Ent. M. M. xxviii, p. 75; *B.*

*chihuahuensis*, Mexico, TOWNSEND, p. 165, Canad. Ent. xxiv: n. spp.

*Calliphora* sp. larvæ killing toads; GUTHRIE, Ent. M. M. xxviii, p. 9.

*Chetoglossa*, n. g., *Phytoinae*, p. 125, for *C. picticornis*, *violæ*, *nigripalpis*, n. spp., Florida, p. 126; TOWNSEND, Tr. Am. Ent. Soc. xix.

*Clista americana*, Illinois, TOWNSEND, p. 78, Canad. Ent. xxiv, n. sp.

*Clistomorpha*, n. g. (*Phytoinae*), p. 79, for *C. hyalomoides*, n. sp., N. York; TOWNSEND, p. 80, Canad. Ent. xxiv.

*Ctenosia brachialis*, Rond., = (*Curicea stroblii*, Mik); MIK, p. 186, Wien. ent. Z. xi.

*C. submaculata*, p. 208, *ferruginea*, p. 209, Java; WULP, Tijdschr. Ent. xxxiv, n. spp.

*Coronimyia*, n. g., *Phytoinae*, p. 128, for *C. geniculata*, n. sp., Illinois, p. 129; TOWNSEND, Tr. Am. Ent. Soc. xix.

*Crossocosmia*: affinities of, and validity of name; MIK, p. 116, Wien. ent. Z. xi.

*Dæocheta*, n. g., *Tachininae*, p. 97, for *D. harveyi*, n. sp., Maine, p. 98; TOWNSEND, Tr. Am. Ent. Soc. xix.

*Desvoidia* n. g. (*Tachinidae*), near *Metopia*, for *D. fusca*, n. sp., England; MEADE, p. 179, Ent. M. M. xxviii.

- Deviidæ* : synoptic table of the N. American genera ; TOWNSEND, pp. 273-284, Tr. Am. Ent. Soc. xix.
- Duponchelia*, R. Desv., = (*Parasetigena*, Br. & Berg.) ; MIK, p. 117, Wien. ent. Z. xi.
- Echinomyia dakotensis*, N. America, TOWNSEND, p. 94, Tr. Am. Ent. Soc. xix, n. sp.
- Emphanopteryx*, n. g., *Thryptoceratinæ*, p. 120, for *E. eumyothyroides*, n. sp., New York, p. 121 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Eucromyia*, n. g., p. 115, near *Ræselia*, for *E. robertsoni*, n. sp., Illinois, p. 116 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Eucnephalia*, n. g., *Phoroceratinæ*, p. 166, for *E. gonoides*, n. sp., New Mexico, p. 167 ; TOWNSEND, Canad. Ent. xxiv.
- Eulasiona*, n. g., *Thryptoceratinæ*, p. 119, for *E. comstocki*, n. sp., New York, p. 120 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Eumacronychia*, n. g., *Tachininae*, p. 98, for *E. decens*, n. sp., N. America, p. 99 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Eumyothyria*, n. g., *Phytoinæ*, p. 121, for *E. illinoensis*, n. sp., N. America, p. 122 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Euphorocera*, n. g., *Phoroceratinæ*, for *E. tachinomoides*, n. sp., New Mexico ; TOWNSEND, p. 112, Tr. Am. Ent. Soc. xix.
- Euscopolia*, n. g., *Phytoinæ*, p. 123, for *E. dakotensis*, n. sp., N. America, p. 124 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Euthyprosopa*, n. g., *Tachininae*, p. 106, for *E. petiolata*, n. sp., New Mexico, p. 107 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Exorista endryæ*, p. 287, *platysamiæ*, *datanæ*, p. 288, N. America, TOWNSEND, Tr. Am. Ent. Soc. xix, n. spp.
- Ginglymia*, n. g., *Thryptoceratinæ*, p. 118, for *G. acirostris*, n. sp., Michigan, p. 119 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Glaucophana*, Br. & Berg., queried as identical with *Neæra*, Rond. ; MIK, p. 185, Wien. ent. Z. xl.
- Gonia sagax*, Iowa, TOWNSEND, p. 65, Canad. Ent. xxiv, n. sp.
- Gymnoprosopa*, n. g., *Tachininae*, p. 108, for *G. polita*, *argentifrons*, *clarifrons*, n. spp., N. America, p. 109 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Helocera* : note on its presumed identity with *Staufferia*. *H. delecta*, Meig., = (*S. diaphana*, Br. & Berg.) ; MIK, p. 55, Wien. ent. Z. xi, also BRAUER & BERGENSTAMM, t. c. p. 108, and MIK, t. c. pp. 110-113.
- Homalomyia corrina*, Wales, *kowarzi*, England, VERRALL, p. 149, Ent. M. M. xxviii ; *H. hirticeps*, p. 70, *barbata*, p. 73, *latipalpis*, p. 75, Centr. Europe, STEIN, Wien. ent. Z. xi : n. spp.
- Hyadesimyia clausa*, referred to *Tachinidæ*, and *H. sarcophagoides* to the genus *Zelleria* ; BIGOT, p. 54, Wien. ent. Z. xi.
- Hylemyia coronata*, ♂ described ; BIDENKAP, Ent. Tidskr. xiii, p. 244.
- Hyphantrophaga*, n. g. for *Meigenia hyphantriae*, Towns. ; TOWNSEND, p. 247, Psyche, vi.
- Hystricia aldrichi*, Dakota : TOWNSEND, p. 91, Tr. Am. Ent. Soc. xix, n. sp.

- Idia fasciata*, destroying locusts in Algeria ; BRONGNIART, Le Nat. 1892, p. 140.
- Lachnomma*, n. g., p. 103, *Tachininae*, for *L. magnicornis*, n. sp., New Mexico, p. 104 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Leptoda elegans*, Java, WULP, p. 207, pl. xii, figg. 11 & 12, Tijdschr. Ent. xxxiv, n. sp.
- Leucostoma neomexicana*, New Mexico, TOWNSEND, p. 169, Canad. Ent. xxiv, n. sp.
- Limnophora zetterstedti*, Norway, BIDENKAP, p. 245, Ent. Tidskr. xiii, n. sp.
- Lispa*, monograph of the European species ; KOWARZ, Wien. ent. Z. xi, pp. 33-54.
- L. leucomelana*, Sarepta, *candicans*, Ægina, p. 36, *convexiuscula*, Sicily, p. 48, KOWARZ, Wien. ent. Z. xi, n. spp.
- Loewia globosa*, Florida, TOWNSEND, p. 129, Ent. News, iii ; *L. ruficornis*, *nigrifrons*, N. America, TOWNSEND, Canad. Ent. xxiv, p. 77 : n. spp.
- Lucilia sylvarum* attacking toads ; MORTENSEN, Zool. Anz. xv, p. 193.
- Lyperosia minuta*, Somaliland ; BEZZI, p. 192, Ann. Mus. Genov. (2) xii, n. sp.
- Macquartia johnsoni*, N. America, TOWNSEND, p. 81, Canad. Ent. xxiv, n. sp.
- Macropalpus*, n. g. for *Exorista villica*, Zett. ; MEUNIER, Bull. Soc. Ent. Fr. lxi, p. cviii.
- Masicera tenthredinidarum*, p. 285, *sphingivora*, *eufitchiae*, p. 286, *datanarum*, p. 287, N. America, TOWNSEND, Tr. Am. Ent. Soc. xix ; *M. protoparcis*, Jamaica, TOWNSEND, p. 70, J. Inst. Jamaica, i : n. spp.
- Masistylum*, n. g., *Pyrrhosiides*, for *Pachystylum arcuatum*, Mik ; BRAUER, p. 595, SB. Ak. Wien, ci.
- Medoria* and *Morinia*, note on ; RÖDER, p. 374, Ent. Nachr. xviii.
- Megaprosopus michiganensis*, N. America ; TOWNSEND, p. 111, Tr. Am. Ent. Soc. xix.
- Meigenia websteri*, referred to *Prospheerysa*, Wulp ; TOWNSEND, p. 259, Psyche, vi.
- Metopia luggeri*, Minnesota, TOWNSEND, p. 69, Canad. Ent. xxiv, n. sp.
- Microtachina*, n. g. for *Tachina nympharum* and *erucarum*, Rond. : MIK, p. 116, Wien. ent. Z. xi.
- Miltogramma decisa*, Florida, TOWNSEND, p. 81, Ent. News, iii ; *M. kansensis*, Kansas, TOWNSEND, p. 68, Canad. Ent. xxiv : n. spp.
- Musca corvina*, n. var., *somalorum* ; BEZZI, p. 190, Ann. Mus. Genov. (2) xii. *M. vomitoria*, embryology ; HENKING, Z. wiss. Zool. liv, p. 171.
- Muscopteryx*, n. g., *Phytoinæ*, p. 170, for *M. chatosula*, n. sp., Chihuahua, p. 171 ; TOWNSEND, Canad. Ent. xxiv.
- Myothyria vanderwulpi*, Florida, TOWNSEND, p. 131, Ent. News, iii, n. sp.
- Neotractocera*, n. g, *Tachininae*, p. 105, for *N. anomala*, n. sp., New Mexico, p. 106 ; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Olenochæta*, n. g., *Phoroceratine*, p. 114, for *O. kansensis*, n. sp, N. America ; TOWNSEND, p. 115, Tr. Am. Ent. Soc. xix.

- Pachyophthalmus floridensis*, Florida, TOWNSEND, Ent. News, iii, p. 80, n. sp.
- Pachystylum* and *Pseudopachystylum*, and their species discussed, BRAUER, pp. 593-607, SB. Ak. Wien, ci; *Pachystylum*, note on the characters and composition of, and on Brauer's views thereon, MIK, pp. 245-248, Wien. ent. Z. xi; *P. arcuatum*, systematic position, MIK, p. 182, t. c.
- Phorbia seneciella*, Centr. Europe; MEADE, p. cxvi, Bull. Soc. Ent. Fr. lxi.
- Phorocera lophyri*, Canada, TOWNSEND, p. 289, Tr. Am. Ent. Soc. xix, n. sp.
- Phyto senilis*, New York, TOWNSEND, p. 81, Canad. Ent. xxiv; *P. nigricornis*, New Mexico, TOWNSEND, p. 170, t. c. : n. spp.
- Phytomyptera unicolor*, abdominal macrochætæ; MIK, p. 182, Wien. ent. Z. xi.
- Plagia aurifrons*, Pennsylvania, TOWNSEND, p. 67, Canad. Ent. xxiv, n. sp.
- Plagiprospherysa*, n. g. near *Phorocera*, for *P. valida*, p. 113, New Mexico, *floridensis*, Florida, p. 114, n. spp.; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Polidea americana*, Michigan, TOWNSEND, p. 82, Canad. Ent. xxiv, n. sp.
- Pseudatractocera*, n. g., *Tachininae*, p. 107, for *P. neomexicana*, n. sp., New Mexico; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Pseudogonia ruficauda*, Dakota, TOWNSEND, p. 66, Canad. Ent. xxiv, n. sp.
- Pseudohystieria exilis*, Jamaica, TOWNSEND, p. 146, Ent. News, iii, n. sp.
- Pseudomythyria*, n. g., *Phytoinae*, p. 131, for *P. indecisa*, n. sp., Illinois, p. 132; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Rhinophora valida*, p. 167, *mexicana*, p. 168, New Mexico, TOWNSEND, Canad. Ent. xxiv, n. spp.
- Sarcoclista*, n. g., *Phytoinae*, p. 122, for *S. dakotensis*, n. sp., N. America, p. 123; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Sarcodexia*, n. g., *Dexiida*, p. 105, for *S. sternodontis*, n. sp., Jamaica, p. 106; TOWNSEND, J. Inst. Jamaica, i.
- Sarcomacronychia*, n. g., *Tachininae*, p. 100, for *S. unica*, n. sp., New Mexico, p. 101; TOWNSEND, Tr. Am. Ent. Soc. xix.
- S. sarcophagoides*, New Mexico, TOWNSEND, p. 165, Canad. Ent. xxiv, n. sp.
- Sarcophagidæ*: synopsis of the N. American genera; TOWNSEND, pp. 279-283, Tr. Am. Ent. Soc. xix.
- Sarcophaga cimbicis*, Dakota, TOWNSEND, p. 126, Canad. Ent. xxiv; *S. helicis*, Ohio, TOWNSEND, Psyche, vi, p. 220; *S. opifera*, N. America (destroying *Melanoplus devastator*), COQUILLETT, Ins Life, v, p. 22, n. spp.
- Sarcotachinella*, n. g., *Tachininae*, p. 110, for *S. intermedia*, n. sp., Illinois, p. 111; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Saundersia rubicunda*, New Grenada, WULP, p. 206, Tijdschr. Ent. xxxiv, n. sp.

- Siphoclytia*, n. g., *Thryptoceratinae*, p. 116, for *S. robertsoni*, n. sp., Florida, p. 117; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Siphophyto*, n. g., *Phytoinae*, p. 127, for *S. floridensis*, *neomexicanus*, n. spp., N. America, p. 128; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Synamphoneura africana*, Somaliland, BEZZI, p. 190, Ann. Mus. Genov. (2) xii, n. sp.
- Tachina*: application of the name and synonymy; BRAUER, pp. 602-606, SB. Ak. Wien, ci.
- T. orgyie*, p. 284, *tenthredinivora*, p. 285, N. America, TOWNSEND, Tr. Am. Ent. Soc. xix, n. spp.
- Tachinomyia*, n. g., *Tachininae*, for *T. robusta*, Michigan, p. 96, *floridensis*, Florida, p. 97, n. spp.; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Tachinophyto*, n. g., *Phytoinae*, p. 130, for *T. floridensis*, n. sp., Florida, p. 131; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Thryptocera americana*, Washington, TOWNSEND, p. 69, Canad. Ent. xxiv, n. sp.
- Trixa gillettei*, Colorado, TOWNSEND, p. 68, Canad. Ent. xxiv, n. sp.
- Trixoclista*, n. g., *Tachininae*, p. 102, for *T. distincta*, n. sp., Illinois, p. 103; TOWNSEND, Tr. Am. Ent. Soc. xix.
- Tryphera americana*, p. 78, *polidoides*, p. 79, N. America; TOWNSEND, Canad. Ent. xxiv, n. spp.
- Vanderwulpia sequens*, New Mexico, TOWNSEND, p. 172, Canad. Ent. xxiv, n. sp.

The following are the new forms described by BRAUER & BERGENSTAMM in Denk. Ak. Wien, lviii, as mentioned on p. 294.

- Macromeigenia*, n. g. for *Chrysoprocta*, Wd.; BRAUER & BERGENSTAMM, p. 311, Denk. Ak. Wien, lviii.
- Cryptomeigenia*, n. g. for *C. setifacies*, n. sp., Brazil, p. 311.
- Pseudoviviania*, n. g., p. 311, for *P. platypoda*, n. sp., Venezuela, p. 312.
- Masiphya*, n. g. for *M. brasiliiana*, n. sp., Ypanema, p. 313.
- Alsopsyche*, n. g. for *A. nemoralis*, n. sp., Venezuela, p. 313.
- Conogaster*, n. g. for *Viviania nubilis*, Rond, p. 314.
- Megalocheta brachystoma*, Austria, p. 317, n. sp.
- Chaetomyia*, n. g. for *Exorista crassisetia*, Rond, p. 317.
- Dexodes machairopsis*, *eggeri*, *auripilus*, Europe, p. 316, n. spp.
- Parexorista raiblensis*, *tultschensis*, *intermedia*, *setosa*, *antennata*, *acrocheta*, p. 318, *clavellariae*, *magnicornis*, p. 320, *brevifrons*, p. 321, *gnava*, *dubia*, *blepharipoda*, p. 322, *grossa*, *trifasciata*, *irregularis*, p. 323, *latifrons*, p. 324, Europe, n. spp.
- Alsomyia*, n. g. for *A. gymnodiscus*, n. sp., Austria, p. 328.
- Paratryphera*, n. g. for *P. handlirschi*, n. sp., Tyrol, p. 328.
- Catacheta*, n. g. for *C. depressariae*, n. sp., Austria, p. 329.
- Blepharidopsis*, n. g. for *B. nemea*, Meig., p. 329.
- Bactromyia*, n. g. for *Masicera scutelligera*, Stein, p. 329.
- Pezomyia*, n. g. for *Raesia aberrans*, Egg., p. 329.
- Ceromasia rufipes*, *wulpii*, Europe, p. 330, n. spp.

- Leptotachina*, n. g. for *Ceromusia gratiosa*, Stein., p. 330.  
*Thelymyia*, n. g. for *T. lowii*, n. sp., Bohemia, p. 330.  
*Myxexorista*, n. g. for *M. pexops*, *flavipalpis*, *roseanæ*, n. spp., Europe, and others, p. 332.  
*Achatoneura*, n. g. for *A. hesperus*, n. sp., N. America, and others from Mexico, p. 334.  
*Tachinoptera*, n. g. for *T. eggeri*, n. sp., Sicily, p. 336.  
*Chatogædia*, n. g. for part of *Prospheysa*, Wulp, pp. 336.  
*Gædiopsis*, n. subg. of *Chatogædia*, for *G. mexicana*, n. sp., Mexico, p. 336.  
*Parahypochaeta*, n. g. for *P. heteroneura*, n. sp., N. America, p. 337.  
*Paralipse*, n. g. for *P. brasiliana*, n. sp., Brazil, p. 337.  
*Paradoria*, n. g. for *P. nigra*, n. sp., Venezuela, p. 339.  
*Neomintho*, n. g. for *macilentu*, Wd., &c, p. 339.  
*Parasetigena*, n. g., p. 339 (no species).  
*Chatoprocta*, n. g., p. 341, for *C. tursalis*, n. sp., Venezuela, p. 342.  
*Otenophorocera*, n. g., pp. 339 & 342, for *C. blepharipus*, n. sp., Cape or Brazil?, p. 42.  
*Xylotachina*, n. g., p. 342, for *X. ligniperdæ*, n. sp., Europe, p. 343.  
*Argyrophylax*, n. g., p. 343, for *A. galii*, *pelmatoprocta*, Europe, *idonea*, Cape Good Hope, n. spp., p. 344, and others.  
*Sisyrota augusta*, Austria, p. 345, *ingens*, Prachatitz, *cinerea*, Rockhampton, *rufiventris*, p. 346, *protopina*, *leptotrichopa*, p. 347, Brazil, n. spp.  
*Bolomyia*, n. g. for *Mystacella violacea*, Wulp, p. 347.  
*Catagonia*, n. g. for *Exorista nemestrina*, Egg., p. 348.  
*Anagonia*, n. g. for *A. spylosioides*, n. sp., Tasmania, p. 348.  
*Thysanomyia*, n. g. for *Brachycoma fimbriata*, Wulp, p. 340.  
*Mesochaeta*, n. g. for *Didyma connexa*, Wulp, p. 341.  
*Paramesochaeta*, n. g. for *Mystacella fuscicostalis*, Wulp, p. 341.  
*Masipoda*, n. g. for *M. geminata*, n. sp., Brazil, p. 341.  
*Anamastax*, n. g. for *Blepharipeza gonieformis*, Mcq., p. 349.  
*Paragædia*, n. g. for *P. hedemanni*, n. sp., Mexico, p. 350.  
*Ptilotachina*, n. g. for *Tachina civilis*, Rond., p. 350.  
*Podotachina*, n. g. for *P. americana* and *vibrissata*, n. spp., New York, p. 350.  
*Tetragrapha*, n. g. for *T. tessellata*, n. sp., Cuba, p. 351.  
*Hypotachina*, n. g. for *H. disparata*, n. sp., Brazil, p. 352.  
*Pseudogermaria*, n. g. for *P. georgiæ*, n. sp., N. America, p. 352.  
*Cnephaliodes*, n. g. for *C. perversus*, n. sp., Russia, p. 353.  
*Cnephalia bisetosa*, n. n. for *C. bucephala*, Schin. pars, p. 353.  
*Paraplagia*, n. g. for part of *Plagia*, p. 354.  
*Goniocera*, n. g. for *G. schistacea*, n. sp., Europe, p. 354.  
*Glaucophana*, n. g. for *G. amasiæ*, n. sp., Asia Minor, p. 354.  
*Paraneæra*, n. g. for *P. longicornis*, n. sp., Askold I., p. 355.  
*Microphana*, n. g. for *M. minuta*, n. sp., Central Europe, p. 355.  
*Nemorilloides*, n. g., p. 355, for *N. flaviventris*, n. sp., Cape of Good Hope, p. 356.  
*Petinops*, n. g. for *P. schnablii*, n. sp., Poland, p. 356.

- Phoricheta handlirschii*, Tyrol, p. 356, n. sp.  
*Henithrixion*, n. g. for *H. æstriforme*, n. sp., Colorado, p. 357.  
*Paratriza*, n. g. for *P. polonica*, n. sp., Poland, p. 357.  
*Metopodia*, n. g. for *Miltogramma grisea* and *intricata*, Meig., p. 359.  
*Parasarcophila*, n. g. for *Sarcophila rufipes*, Schin., p. 359.  
*Araba*, R. D., to be used in place of *Eumetopia*, Br. Berg., *A. manni*,  
*bifasciata*, p. 359, *stelviana*, E. Europe, *fulva*, Bordeaux, p. 360,  
n. spp.  
*Erythronychia*, n. g. for *Demoticus australensis*, S., p. 360.  
*Arrenopus*, n. g. for *A. americanus*, n. sp., Georgia, p. 361.  
*Selenomyia*, n. g. for *S. brevicornis* (Phil.), n. sp., Chili, p. 361.  
*Nemorea tropidobothra*, Java, p. 361, n. sp.  
*Myiophasia*, n. g. for *M. ænea*, Wd., p. 362.  
*Thorarites*, n. g. for *Musca abdominalis*, Wd., p. 363.  
*Myxodexia*, n. n. for (*Tropidomyia*, Br. Berg.), p. 363.  
*Myiomima brasiliانا*, Brazil, p. 364, n. sp.  
*Gymnodexia*, n. g. for *Sirostoma trianguliferum*, Zett., and *G. steinii*, n. sp.,  
Hungary, p. 364.  
*Prorhynchops*, n. g. for *P. bilimeki*, n. sp., Mexico, p. 364.  
*Styloneuria*, n. g. for *S. manni*, n. sp., Ragusa, p. 365.  
*Sarothromyia*, n. g. for *Sarcophila femoralis*, S., p. 365.  
*Tephromyia*, n. g. for *Sarcophaga grisea*, Mg., p. 366.  
*Paramorinia*, n. g. for *P. cincta*, n. sp., Tyrol, p. 367.  
*Leucomyia*, n. g. for *Sarcophila alba*, Schin., p. 368.  
*Ptilozeuxia brachycera*, n. n. for (*P. brevicornis*, Egg.), p. 368.  
*Erythrandra*, n. g. for *E. picipes*, n. sp., N. America, p. 368.  
*Orytachina*, n. g. for *Heteronychia vittata*, Wd., p. 369.  
*Mochlosoma simonyi*, Canary Is., n. sp., p. 370.  
*Prosenoides*, n. g. for *Prosenia papilio*, S., p. 370.  
*Desiophana*, n. g. for *Prospheysa æmulans*, Wulp, p. 374.  
*Gymnostylia ornata*, Venezuela, p. 374, n. sp.  
*Eufischeria*, n. g. for *E. ceylanica*, n. sp., Ceylon, p. 374.  
*Ptilodegeeria*, n. g. for *Hypostena obumbrata*, Wulp, p. 375.  
*Prosheliomyia*, n. g. for *P. nietneri*, n. sp., Ceylon, p. 375.  
*Minthodexia*, n. g. for *M. gravipes*, *flavicornis*, n. spp., Venezuela, p. 376.  
*Zosteromyia*, n. g. for *Myobia cingulata*, Mcq., p. 376.  
*Pseudodexia*, n. g. for *Dexia eques*, Wd., p. 378.  
*Pseudodimera*, n. g. for *nigripes*, Wd. (n. sp. ?), p. 378.  
*Pachygraphia*, n. g. for *Dexia fervens*, and *virgata*, Wd., p. 379.  
*Lepidodexia*, n. g. for *L. tetraptera*, n. sp., Venezuela, p. 379.  
*Emporomyia*, n. g. for *E. kaufmanni*, n. sp., Austria, p. 380.  
*Rhinomacquartia*, n. g. for *R. chætophora*, n. sp., Brazil, p. 381.  
*Paratidyma*, n. g. for *Didyma validinervis*, Wulp, p. 382.  
*Paratichina*, n. g. for *P. ingens*, Wd., ? n. sp., p. 382.  
*Tachinomima*, n. g. for *Tachina expetens*, Wd., p. 383.  
*Chætophthalmus*, n. g. for *Micropalpus brevigaster* and *bicolor*, Mcq.,  
p. 383.

- Paragymnomma*, n. g. for *P. hystrix* and *diaphana*, n. spp., Brazil, p. 384.  
*Plagiomima*, n. g. for *P. disparata*, n. sp., Mexico, p. 384.  
*Sesiophaga*, n. g. for *Myobia glirina*, Rdi., p. 384.  
*Micromyobia*, n. g. for *Myobia montana*, Schin., p. 385.  
*Chatodemoticus*, n. g. for *Demoticus chilensis*, Schin., p. 385.  
*Aneogmena*, n. g. for *A. fischeri*, n. sp., Agra, p. 385.  
*Peteina stylata*, Greenland, n. sp., p. 387.  
*Stylogymnomyia*, n. g. for *Gymnosoma nitens*, Mg., p. 387.  
*Mormonomyia*, n. g. for *laniventris*, Wd., ? n. sp., p. 388.  
*Epineura*, n. g. for *Phasia helva* and *teniata*, Wd., p. 388.  
*Elizeta americana*, Georgia, n. sp., p. 388.  
*Paramphibolia*, n. g. for *Rutilla assimilis*, Mcq., p. 389.  
*Microcerella steindachneri*, Galapagos Is., n. sp., p. 389.  
*Thelychæta*, n. g. for *T. chalybea*, n. sp., Borneo, p. 390.  
*Arrhinidia*, n. g. for *Rhynchomyia aberrans*, Sch., p. 390.  
*Phasiophana*, n. g. for *Musca obsoleta*, Wd., p. 390.  
*Pararicia*, n. g. for a part of *Cyrtoneura*, p. 391.  
*Neocalliphora*, n. g. for *Call. dasyophthalma*, Mcq., and *ochracea*, S., p. 391.  
*Paralucilia*, n. g. for *Calliph. fulvipes*, Blanch., p. 391.  
*Zonochroa*, n. g. for *Ochromyia euzona*, Löw, p. 391.  
*Auchēromyia*, n. g. for *Ochromyia luteola*, Fbr., p. 391, BRAUER & BERGENSTAMM, Denk. Ak. Wien, lviii.

## MUSCIDÆ ACALYPTRATÆ.

- Agromyza lappæ*, metamorphoses ; LAMPA, Ent. Tidskr. xiii, pp. 117-120.  
*Cacoxenus indagator*, characters of ; MIK, p. 182, Wien. ent. Z. xi : chætotaxy ; OSTEN-SACKEN, Berl. Ent. Zeit. xxxvi, p. 311.  
*Chlorops pumilionis*, life-history ; LAMPA, Ent. Tidskr. xiii, p. 257, pl. vii.  
*Celopa æquatorialis*, Somaliland, BEZZI, p. 194, Ann. Mus. Genov. (2) xii, n. sp.  
*Drosophila lacteo-guttata*, W. Russia, PORTSCHINSKY, p. 226, pl. i, fig. 20, Hor. Ent. Ross. xxvi ; *D. nigropunctata*, Java, WULP, p. 216, Tijdschr. Ent. xxxiv : n. spp.  
*Ephydra dorsopunctata*, Wied., referred to *Notiphila* ; WULP, p. 215, Tijdschr. Ent. xxxiv.  
*Eurosta solidaginis* : galls and parasites noticed ; BRODIE, p. 137, Canad. Ent. xxiv.  
*Homoneura*, n. g., *Sapromyzarum*, p. 213, for *H. picea*, n. sp., Java, p. 214 ; WULP, Tijdschr. Ent. xxxiv.  
*Hypenidium græcum* : note on, with fig. of wing ; PORTSCHINSKY, p. 215, pl. i, fig. 13, Hor. Ent. Ross. xxvi.  
*H. sibiricum*, Amurland, PORTSCHINSKY, p. 216, pl. i, fig. 14, Hor. Ent. Ross. xxvi, n. sp.  
*Lagarosia*, n. g., *Ortalarum*, p. 210, for *L. lacteata*, p. 211, *striatella*, p. 213, n. spp., Java ; WULP, Tijdschr. Ent. xxxiv.

- Lamprophthalma*, n. g., near *Loxocera*, p. 225, for *L. metallica*, n. sp., Persia, p. 226, pl. i, fig. 7; PORTSCHINSKY, Hor. Ent. Ross. xxvi.
- Macrotrypeta*, n. g., p. 223, for *M. ortalidina*, n. sp., Siberia, p. 224, pl. i, fig. 11; PORTSCHINSKY, Hor. Ent. Ross. xxvi.
- Myennis sibirica*, Siberia, PORTSCHINSKY, p. 213, pl. i, fig. 10, Hor. Ent. Ross. xxvi, n. sp.
- Neottiophilum*: characters and systematic position discussed; RÖDER, p. 204, Ent. Nachr. xviii.
- Opomyza punctella*, Fall.: variation and characters noticed; SENTENIS, p. 177, Wien. ent. Z. xi.
- Paralimna javana*, Java, WULP, p. 215, pl. xii, fig. 17, Tijdschr. Ent. xxxiv, n. sp.
- Platyparea*? *terebratula*, E. Siberia, PORTSCHINSKY, p. 216, pl. i, fig. 9, Hor. Ent. Ross. xxvi, n. sp.
- Ptilona amurensis*, E. Siberia, PORTSCHINSKY, p. 214, pl. i, fig. 12, Hor. Ent. Ross. xxvi, n. sp.
- Pyrgota microcera*, Amur, PORTSCHINSKY, p. 212, pl. i, fig. 8, Hor. Ent. Ross. xxvi, n. sp.
- Sapromyza*: characters of the N. American; TOWNSEND, pp. 301-303, Canad. Ent. xxiv.
- S. ocellaris*, New Mexico, TOWNSEND, p. 303, Canad. Ent. xxiv; *S. mikii*, p. 155, *styriaca*, p. 156, Austrian Alps, STROBL, Wien. ent. Z. xi: n. spp.
- Spilograptha armifrons*, p. 221, pl. i, figs. 16 & 17, *bipunctata*, p. 222, fig. 15, E. Siberia, PORTSCHINSKY, Hor. Ent. Ross. xxvi, n. spp.
- Tephritis tatarica*, Turkestan, p. 218, pl. i, fig. 19, *angulato fasciata*, Persia, p. 220, fig. 18, PORTSCHINSKY, Hor. Ent. Ross. xxvi.
- Timia testacea*, Central Asia, PORTSCHINSKY, p. 211, Hor. Ent. Ross. xvi, n. sp.

## PHORIDÆ.

- Phora*: remarks on characters, habits, and variation of the Austrian species; STROBL, pp. 193-204, Wien. ent. Z. xi.
- Phora crassicosta*, p. 194, *erythronota*, p. 195, *spinosissima*, p. 196, *pseudocoincinnia*, p. 199, *nitidifrons*, p. 200, *xanthozona*, p. 203, Austria, STROBL, Wien. ent. Z. xi; *P. cimbicis*, p. 143, *setacea*, p. 144, *luggeri*, p. 145, *minuta*, p. 146, Dakota, ALDRICH, Canad. Ent. xxiv; *P. omnivora*, New Zealand, HUDSON, Manual, p. 62, pl. vii, fig. 15: n. spp.

## PUPIPARA.

- The mouth parts of various *Pupipara*, including *Braula* and *Nycteribia*, described; MÜGGENBURG, Arch. f. Nat. lviii, i, pp. 287-332, pls. xv & xvi.
- Trichobius dugesii*, note on; TOWNSEND, p. 177, Ent. News, iii.

(E.) *RHYNCHOTA*.

HEMIPTERA-HETEROPTERA.

[*Cf.* ASHMEAD (18A), BERG (56), BERGROTH (62-72), CARLINI (158), CARPENTER (159), DISTANT (210, 217, 218, 347), DUGÈS (229), FERRARI (281), FORBES (286), GERSTAECKER (323), HEIDEMANN (392), HORVÁTH (428-431), HUDSON (440), JAKOWLEFF (452), KARSCH (460, 465), LÉON (545), MOBERG (614), MONTANDON (617-620), PUTON (707, 708), REUTER (730-733), SCHLECHTENDAL (800), SHARP (842), TRYON (952).]

Homologies of the Hemipterous mouth, SMITH (866) ; and Homology of the trophi, LÉON (545).

Silurian fossil Hemipterous insect, MOBERG (614).

BERGROTH, *Rev. d'Ent.* xi, pp. 262-264, records many synonyms in view of the promised general Catalogue of *Hemiptera* ; these it appears unnecessary for us to give in detail.

*Hemidiptera haeckeli*, LÉON, note on ; BERGROTH, p. 169, *Wien. ent. Z.* xi.

PENTATOMIDÆ.

*Aleimocoris potanini*, China, HORVÁTH, p. 134, *Term füzetek*, xv, n. sp.

*Antestia guttifera*, E. Africa, GERSTAECKER, p. 46, *J.B. Hamb. Anst.* ix ;  
*A. transvaalia*, Transvaal, DISTANT, p. 251, pl. iii, fig. 6, *Naturalist Transvaal* : n. spp.

*Aphanopneuma stali*, Africa, = (*biloba*, Sign., Stal) ; MONTANDON, p. 297, *Rev. d'Ent.* xi, n. sp.

*Apotomogonius*, n. g., *Plataspidineæ*, p. 301, for *A. exornatus*, n. sp., *Centr. Africa*, p. 302 ; MONTANDON, *Rev. d'Ent.* xi.

*Arma prasina*, New Guinea, TRYON, p. 15, *Ann. Queensland Mus.* ii, n. sp.

*Asopus figuratus*, var. described and figured ; DISTANT, p. 248, pl. iii, fig. 1, *Naturalist Transvaal*.

*A. glaucolimbata*, New Guinea, TRYON, p. 15, *Ann. Queensland Mus.* ii, n. sp.

*Aspongopus balinus*, W. Africa, KARSCH, p. 166, *Ent. Nachr.* xviii, n. sp.

*Basicryptus elongatus*, Transvaal, *antennatus*, E. Africa. DISTANT, p. 239, *Ent. M. M.* xxviii, n. spp.

*Brachyplatys flavosparsus*, Borneo, BERGROTH, p. 171, *Wien. ent. Z.* xi ;

*B. simplex, pusilla*, N. Guinea, TRYON, p. 13, *Ann. Queensland Mus.* ii : n. spp.

- Cintharodes nubilosus*, Congo, MONTANDON, p. 299, Rev. d'Ent. xi, n. sp.
- Carpocoris alienus*, E. Siberia, REUTER, p. 176, Öfv. Finska. Förh. xxxiii, n. sp.
- Caura superba*, W. Africa, KARSCH, p. 164, Ent. Nachr. xviii, n. sp.
- Cermatulus pulcher*, New Guinea, TRYON, p. 15, Ann. Queensland Mus. ii, n. sp.
- Chrysocoris nicobarensis*, Nicobar Is., DISTANT, Ent. xxv (Supp.), p. 96, n. sp.
- Coptosoma atenes*, W. Africa, KARSCH, p. 129, Ent. Nachr. xviii. *C. sculpturatum*, Madagascar, p. 278, *nebulosum*, p. 279, *confusum*, p. 280, E. Africa, *parvipictum*, p. 281, *sordidulum*, p. 283, China, *lethierryi*, E. India, p. 284, MONTANDON, Rev. d'Ent. xi. *C. respersum*, Java, p. 171, *mundum*, p. 172, *lascivum*, p. 173, China, BERGROTH, Wien. ent. Z. xi : n. spp.
- Derula delagrangei*, Syria, PUTON, p. 25, Rev. d'Ent. xi, n. sp.
- Dictyotus transversus*, Murray I., CARPENTER, p. 138, pl. xii, fig. 1, P. R. Dublin Soc. (n. s.) vii, n. sp.
- Dolycoris rutherfordi*, Old Calabar, DISTANT, p. 187, Ent. M. M. xxviii, n. sp.
- Edessa herrichi*, p. 45, *rugiventris*, p. 48, Argentine Rep., BERG, An. Soc. Arg. xxxiii, n. spp.
- Ennius monteironis*, Delagoa Bay, DISTANT, p. 188, Ent. M. M. xxviii, n. sp.
- Eysarcoris megaspiloides*, New Guinea, TRYON, p. 17, Ann. Queensland Mus. ii, n. sp.
- Gonocerus juniperi*, n. var., *obtusangulus*, PUTON, p. 26, Rev. d'Ent. xi.
- Halyomorpha bimaculata*, Sierre Leone, BERGROTH, p. 160, Ann. Ent. Belg. xxxvi. *H. capitata*, p. 249, pl. iii, fig. 3, *pretoriae*, p. 250, fig. 4, Transvaal, DISTANT, Naturalist Transvaal : n. spp.
- Handhirschiella*, n. g., *Plataspidineæ*, p. 294, for *H. aenea*, p. 295, *emarginata*, p. 296, n. spp., Africa ; MONTANDON, Rev. d'Ent. xi.
- Holcostethus distanti*, S. Africa, BERGROTH, p. 160, Ann. Ent. Belg. xxxvi. *H. obscuratus*, Transvaal, DISTANT, p. 249, pl. iii, fig. 2, Naturalist Transvaal : n. spp.
- Hymenomaga*, n. g., near *Tropicorypha*, for *T. formosa*, Dist., KARSCH, p. 130, Ent. Nachr. xviii.
- Isoplatys*, n. g., *Plataspidineæ*, for *I. flavonotatus*, n. sp., Gaboon ; MONTANDON, p. 303, Rev. d'Ent. xi.
- Lyramorpha maculifer*, New Guinea, TRYON, p. 19, Ann. Queensland Mus. ii, n. sp.
- Megymenum severini*, Bengal, BERGROTH, p. 504, Ann. Ent. Belg. xxxvi, n. sp.
- Menida quadrimaculata*, Mongolia, HORVATH, p. 134, Term. füzetek, xv, n. sp.
- Nezara abnormis*, Buenos Aires, p. 7, *vicina*, p. 8, *fucosa*, p. 9, Argentine Rep., BERG, An. Soc. Arg. xxxiii, n. spp.
- Odontotarsus horvathi*, N. Africa, PUTON, p. 24, Rev. d'Ent. xi, n. sp.

- Orthoschizops plagosa*, S. Africa, DISTANT, p. 238, Ent. M. M. xxviii, n. sp.  
*Patanocnema*, n. g., near *Aspongopus*, for *P. ovata*, n. sp., W. Africa ;  
 KARSCH, p. 130, Ent. Nachr. xviii.  
*Peloderma*, n. g. *Plataspidinæ*, for *P. æthiops*, n. sp., W. Africa,  
 BERGROTH, p. cclv, Bull. Soc. Ent. Fr. lxi.  
*Pentatoma* (*Cappæa*) *pretoria*, E. Africa, GERSTAECKER, JB. Hamb. Anst.  
 ix, p. 46 ; *P. submarginalis*, p. 16, *maculifer*, *prasina*, p. 17, New  
 Guinea, TRYON, Ann. Queensland Mus. ii : n. spp.  
*Peromatus sulcifer*, Argentine Rep., BERG, p. 43, An. Soc. Arg. xxxiii,  
 n. sp.  
*Phila ærea*, Australia, DISTANT, Ent. xxv (Supp.), p. 96, n. sp.  
*Phimodera mongolica*, E. Siberia, REUTER, p. 173, Cefv. Finska Förh.  
 xxxiv, n. sp.  
*Piezosternum subulatum*, egg figured ; SHARP, pl. viii, fig. 9, Tr. E. Soc. 1892.  
*Plataspis gambeyi*, Gaboon, p. 273, *plagifera*, Guinea, p. 275, *guttulata*,  
 Gaboon, p. 276, *consersa*, Madagascar, p. 277, MONTANDON, Rev.  
 d'Ent. xi, n. spp.  
*Platytatus*, n. g. (*Eustheninæ*), p. 158, for *P. ambiguus*, n. sp., Madagascar,  
 p. 159 ; BERGROTH, Ent. M. M. xxviii.  
*Pododus striatus*, S. Africa, DISTANT, p. 238, Ent. M. M. xxviii, n. sp.  
*Pœcilochroma balteata*, E. India, DISTANT, Ent. xxv (Supp.), p. 96, n. sp.  
*Ponsila severini*, Centr. Africa, MONTANDON, p. 304, Rev. d'Ent. xi, n. sp.  
*Schizops icterica*, E. Africa, GERSTAECKER, p. 47, JB. Hamb. Anst. ix,  
 n. sp.  
*Sehirus biguttatus*, n. var. *tibialis* ; PUTON, p. 25, Rev. d'Ent. xi : n. var.  
*concolor* ; NICKERL, p. 62, S. E. Z. liii.  
*Sephela morosa*, E. Africa, GERSTAECKER, p. 45, JB. Hamb. Anst. ix,  
 n. sp.  
*Solenosthedium madagascariensis*, Madagascar, DISTANT, p. 187, Ent. M. M.  
 xxviii, n. sp.  
*Spudæus variabilis*, New Guinea, TRYON, p. 18, Ann. Queensland Mus.  
 ii, n. sp.  
*Tesseratoma hornimani* and allies, characters noticed ; DISTANT, p. 188,  
 Ent. M. M. xxviii.  
*Tiarocoris luminatus*, Malacca, MONTANDON, p. 307, Rev. d'Ent. xi, n. sp.  
*Uhlunga*, n. g. (*Pentatominae*), for *U. typica*, n. sp., Natal ; DISTANT,  
 p. 237, Ent. M. M. xxviii.  
*Vaterna patula*, Transvaal, DISTANT, p. 250, pl. iii, fig. 5, Naturalist  
 Transvaal, n. sp.

## COREIDÆ.

- Acanthocephala granulosa*, Dall., = (*luctuosa*, Stål) ; DISTANT, p. 359,  
 Biol. Centr. Am. Rhynch. Heter.  
*Anasa montivaga*, p. 366, pl. xxxiii, fig. 19, *delibata*, fig. 17, *decretoria*,  
 fig. 16, *versicolor*, fig. 18, p. 367, Centr. America, DISTANT, Biol.  
 Centr. Am. Rhynch. Heter. ; *A. limbata*, p. 97, *declivicollis*, p. 153,  
 Argentine Rep., BERG, An. Soc. Arg. xxxiii : n. spp.

- Archimerus chiriquinus*, Panama, DISTANT, p. 355, pl. xxxiii, fig. 4, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Athaumastus subfoveolatus*, Argentine Rep., BERG, p. 66, An. Soc. Arg. xxxiii, n. sp.
- Bardistus serrulatus*, figured, pl. xxxiii, fig. 7, Biol. Centr. Am. Rhynch. Heter.
- B. formidabilis*, Panama, DISTANT, p. 357, pl. xxxiii, fig. 9, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Capaneus chontalensis*, Nicaragua, pl. xxxiii, fig. 3, *humerosus*, fig. 5, Mexico, DISTANT, p. 354, Biol. Centr. Am. Rhynch. Heter., n. spp.
- Catorhintha sinuatipennis*, Buenos Aires, BERG, p. 152, An. Soc. Arg. xxxiii, n. sp.
- Cebrenis rubro-conspersa*, Argentine Rep., BERG, An. Soc. Arg. xxxiii, p. 99, n. sp.
- Chariesterus robustus*, Mexico, pl. xxxiii, fig. 12, *cuspidatus*, Panama, fig. 14, DISTANT, p. 364, Biol. Centr. Am. Rhynch. Heter., n. spp.
- Diactor bogotanus*, figured, pl. xxxiii, fig. 8, Biol. Centr. Am. Rhynch. Heter.
- Dulichius*, Stål, = (*Formicoris*, Kirb.); BERGROTH, p. 225, Wien. ent. Z. xi.
- D. wroughtoni*, E. India, BERGROTH, p. 107, Ent. M. M. xxviii [*D.* (sub *Formicoris*) *inflatus*, Kirby, = (*wroughtoni*), BERGROTH, t. c. p. 126], n. sp.
- Elasmocnema*, n. g., near *Mictis*, for *E. limpidipennis*, n. sp., W. Africa; KARSCH, p. 131, Ent. Nachr. xviii.
- Homæocerus vicarians*, Cameroons, KARSCH, p. 132, Ent. Nachr. xviii, n. sp.
- Hormambogaster*, n. g., near *Dalader*, for *H. expansus*, n. sp., W. Africa; KARSCH, p. 131, Ent. Nachr. xviii.
- Hypselonotus bitrianguliger*, Argentine Rep., BERG., p. 101, An. Soc. Arg. xxxiii, n. sp.
- Laminiceps quadrisignata*, Central America, DISTANT, p. 360, pl. xxxiii, fig. 11, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Leptoglossus dentatus*, p. 68, *impressicollis*, p. 69, *concaviusculus*, p. 70, Argentine Rep., BERG, An. Soc. Arg. xxxiii, n. spp.
- Melucha quinquelineata*, figured, pl. xxxiii, fig. 2, Biol. Centr. Am. Rhynch. Heter.
- M. bicolor*, Guatemala, DISTANT, p. 353, pl. xxxiii, fig. 1, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Mictis lata*, E. Africa, GERSTAECKER, p. 48, JB. Hamb. Anst. ix, n. sp.
- Myrmus calcaratus*, E. Siberia, REUTER, p. 181, Öfv. Finska Förh. xxxiii, n. sp.
- Narnia inornata*, Mexico, DISTANT, p. 361, pl. xxxiii, fig. 10, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Ojedana*, n. g., near *Archimerus*, p. 355, for *O. loricata*, n. sp., Panama, p. 356, p. xxxiii, fig. 6, DISTANT, Biol. Centr. Am. Rhynch. Heter.

- Ocengua*, n. g. (*Daladeraria*), for *O. aperta*, n. sp., Old Calabar : DISTANT, Ent. M. M. xxviii, p. 285.
- Plinachtus falcatus*, Transvaal, DISTANT, p. 251, pl. iii, fig. 8, Naturalist Transvaal, n. sp.
- Prismatocerus* (*Philonus*) *hæmatocerus*, E. Africa, GERSTAECKER, p. 48, JB. Hamb. Anst. ix, n. sp.
- Rhopalus* (*Stictopleurus*) *nysioides*, p. 178, *R. (Æschynteles) robustus*, p. 179, E. Siberia, REUTER, Öfv. Finska Förh. xxxiii, n. spp.
- Savius diagonalis*, Corrientes, BERG, p. 102, An. Soc. Arg. xxxiii, n. sp.
- Sethenira uruguayensis*, S. America, BERG, p. 71, An. Soc. Arg. xxxiii, n. sp.
- Spartocera gigantea*, Costa Rica, DISTANT, p. 363, pl. xxxiii, fig. 13, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Vilga mexicana*, Omilteme, DISTANT, p. 368, pl. xxxiii, fig. 20, Biol. Centr. Am. Rhynch. Heter., n. sp.
- Zicca castanea*, Argentine Rep., BERG, p. 98, An. Soc. Arg. xxxiii, n. sp.

## LYGEIDÆ, PYRRHOCORIDÆ.

- Antilochus violaceus*, Somaliland, CARLINI, p. 532, Ann. Mus. Genov. (2) xii, n. sp.
- Beosus hoplites*, E. Africa, GERSTAECKER, p. 49, JB. Hamb. Anst. ix, n. sp.
- Cenæus* ? *exsanguis*, Zanzibar, GERSTAECKER, p. 50, JB. Hamb. Anst. ix, n. sp.
- Dysdercus festivus*, E. Africa, GERSTAECKER, p. 50, JB. Hamb. Anst. ix ; *D. melanoderes* (Germ.), Cameroons, KARSCH, p. 133, Ent. Nachr. xviii : n. spp.
- Geocoris putonianus*, n. n. for *G. piceus* infra ; BERGROTH, Rev. d'Ent. xi, p. 264.
- G. henoni*, Cairo, PUTON, p. 26, Rev. d'Ent. xi ; *G. (Piocoris) piceus*, Turkestan, PUTON, p. 72, t. c. : n. spp.
- Henestaris irroratus*, S. France, HORVATH, p. 136, Rev. d'Ent. xi, n. sp.
- Ischnodemus atricolor*, Uruguay, BERG, p. 158, An. Soc. Arg. xxxiii, n. sp.
- Ischnopeza pallipes*, Biskra, PUTON, p. 27, Rev. d'Ent. xi ; *I. flavogrisea*, Somaliland, CARLINI, p. 530, Ann. Mus. Genov. (2) xii : n. spp.
- Lamprodema rufipes*, E. Siberia, REUTER, p. 182, Öfv. Finska Förh. xxxiii, n. sp.
- Lygeus* (*Melanocoryphus*) *heydeni*, Turkestan, PUTON, p. 71, Rev. d'Ent. xi ; *L. planitia*, pl. iii, fig. 7, *desertus*, fig. 9, p. 252, *campestris*, p. 253, fig. 10, Transvaal, DISTANT, Naturalist Transvaal : n. spp.
- Myrmoplasta*, n. g., *Pyrrhocorides*, for *M. mira*, n. sp., E. Africa, GERSTAECKER, p. 51, JB. Hamb. Anst. ix.
- Nysius novitius*, Transvaal, DISTANT, p. 254, pl. iii, fig. 11, Naturalist Transvaal ; *N. gibbifer*, p. 155, *ellipticus*, p. 156, Arg. Rep., BERG, An. Soc. Arg. xxxiii : n. spp.

- Elancala* (sub *Pamera*) *dorsalis*, Say, = (*dorsilinea*, Am. & Serv.) ; BERG, p. 160, An. Soc. Arg. xxxiii.
- Oncopeltus bueanus*, Cameroons, KARSCH, p. 132, Ent. Nachr. xviii, n. sp.
- Pamera procerula*, p. 162, *sororcula*, p. 163, Buenos Aires, BERG, An. Soc. Arg. xxxiii, n. spp.
- Peritrechus* : characters of the Russian species ; JAKOWLEFF, p. 228, Hor. Ent. Ross. xxvi.
- P. insignis*, Derbent, JAKOWLEFF, p. 231, Hor. Ent. Ross. xxvi, n. sp.
- Phygadicus australis*, Murray I., CARPENTER, p. 140, pl. xii, fig. 2, P. R. Dublin Soc. (n.s.) vii, n. sp.
- Pyrrhopeplus carduelis*, n. var. *posthumus*, HORVÁTH, p. 135, Term. füzetek, xv.
- Rhyparochromus puncticollis*, n. var. *nigripes*, HORVÁTH, p. 138, Rev. d'Ent. xi.
- Scolopostethus* : characters of the palæarctic species, and synonymical list ; HORVÁTH, pp. 253–256, Rev. d'Ent. xi.
- S. patruelis*, S. France, HORVÁTH, p. 138, Rev. d'Ent. xi, n. sp.
- Sericocoris*, n. g., p. 132 (*Pyrrhocorides*), for *S. acromelanthes*, n. sp., Cameroons, p. 133, KARSCH, Ent. Nachr. xviii.
- Transvaalia*, n. g., for *T. lugens*, n. sp., Transvaal, pl. iii, fig. 12 ; DISTANT, p. 253, Naturalist Transvaal.
- T. flavescens*, Pretoria, DISTANT, Ent. M. M. xxviii, p. 285.

## TINGITIDÆ.

- Campylostira* : revision of species with characters and varr. described ; HORVÁTH, pp. 309–313, Wien. ent. Z. xi.
- C. bosnica*, p. 309, Bosnia, *eximia*, Turkestan, p. 311, HORVÁTH, Wien. ent. Z. xi, n. spp.
- Cyclotynaspis*, n. g., *Cantacaderaria*, for *C. acalyptoides*, n. sp., Singapore ; MONTANDON, Rev. d'Ent. xi, p. 265.
- Dictyonota* (*Elina*) *henschi*, Budapest, PUTON, p. 72, Rev. d'Ent. xi, n. sp.
- Eurycera glabricornis*, Mozambique, MONTANDON, p. 267, Rev. d'Ent. xi, n. sp.
- Leptostyla carmelana*, Uruguay, BERG, p. 200, An. Soc. Arg. xxxiv, n. sp.

## ARADIDÆ.

- Aneurus indicus*, Burma, BERGROTH, p. 717, Ann. Mus. Genov. (2) xii, n. sp.
- Aradus similis*, var., = (*centriguttatus*), p. 332, list of the N. American *Aradidæ*, pp. 335 & 336 ; BERGROTH, P. E. Soc. Wash. ii.
- A. mirabilis*, Burma, BERGROTH, p. 710, Ann. Mus. Genov. (2) xii ; *A. duzei*, Ontario, p. 333, *concinus*, California, p. 337, BERGROTH, P. E. Soc. Wash. ii : n. spp.
- Artabanus excelsus*, ♂, with stridulating area, described ; BERGROTH, p. 806, Ann. Mus. Genov. (2) xii.

- A. excelsus, setulosus*, p. 713, *sexspinosus*, p. 714, Burma, BERGROTH, Ann. Mus. Genov. (2) xii, n. spp.
- Brachyrrhynchus verruciger*, Amurland, BERGROTH, p. 261, Rev. d'Ent. xi; *B. undulatus*, Bengal, BERGROTH, p. 504, Ann. Ent. Belg. xxxvi; *B. tenericornis*, Burma, BERGROTH, p. 716, Ann. Mus. Genov. (2) xii : n. spp.
- Carventus gestroi*, Burma, BERGROTH, p. 712, Ann. Mus. Genov. (2) xii, n. sp.
- Lobocara*, n. g. for *L. oblonga*, Argentine Rep., p. 259, *ovata*, Mexico, p. 260, n. spp.; BERGROTH, Rev. d'Ent. xi.
- Neuroctenus debilicornis*, Gaboon, MONTANDON, p. 268, Rev. d'Ent. xi, n. sp.
- Pictinus asiaticus*, Burma, BERGROTH, p. 716, Ann. Mus. Genov. (2) xii; *P. modiglianii, pusio*, Engano, BERGROTH, p. 807, t. c. : n. spp.

## HYDROMETRIDÆ.

- Gerris (Tenagogenus) hypoleuca*, E. Africa, GERSTAECKER, p. 55, JB. Hamb. Anst. ix, n. sp.
- Halobates regalis*, Mabuiag, CARPENTER, p. 144, pl. xiii, figg. 1-8, P. R. Dublin Soc. (n.s.) vii, n. sp.
- Hermatobates*, n. g., p. 142, for *H. haddonii*, n. sp., Mabuiag, p. 143, pl. xii, figg. 4-8; CARPENTER, P. R. Dublin Soc. (n.s.) vii.
- Limnometra lineata*, Mabuiag, CARPENTER, p. 141, pl. xii, fig. 3, P. R. Dublin Soc. (n.s.) vii, n. sp.
- Tenagogenus*, subg. (n. ?) of *Gerris*; GERSTAECKER, p. 56, JB. Hamb. Anst. ix.

## REDUVIIDÆ.

- Eggs of a *Reduviid* described and figured with micropyle (?) apparatus; SHARP, Tr. E. Soc. 1892, p. 191, pls. viii & ix.
- Acanthaspis armata*, Somaliland, CARLINI, p. 535, Ann. Mus. Genov. (2) xii, n. sp.
- Cleptria bicolor*, S. Africa, BERGROTH, p. 162, Ann. Ent. Belg. xxxvi, n. sp.
- Coranus longiceps*, S. Africa, BERGROTH, p. 161, Ann. Ent. Belg. xxxvi; *C. hammarstroemii*, Mongolia, REUTER, p. 184, Öfv. Finska Förh. xxxiii; *C. löczyi*, Calcutta, HORVÁTH, p. 135, Term. füzetek. xv : n. spp.
- Ectrichodia problematica*, E. Africa, GERSTAECKER, p. 54, JB. Hamb. Anst. ix, n. sp.
- Ectrychotes jakowleffi*, China, HORVÁTH, p. 136, Term. füzetek. xv, n. sp.
- Endochus africanus*, W. Africa, BERGROTH, p. 161, Ann. Ent. Belg. xxxvi, n. sp.
- Enicocephalus*: note on, and on *Hymenodectes*, Uhl.; ASHMEAD, p. 329, P. E. Soc. Wash. ii.

- Formicoris*, Kirby, is the same as *Dulichius*; BERGROTH, Ent. M. M. xxviii, p. 126.
- Henicocephalus*, = (*Dicephalus*, Kirb.); BERGROTH, p. 225, Wien. ent. Z. xi.
- Holotrichius henoni*, Suez, PUTON, p. 27, Rev. d'Ent. xi, n. sp.
- Ischnobaena preussi*, W. Africa, KARSCH, p. 136, Ent. Nachr. xviii, n. sp.
- Laphytes* ? *brachialis*, E. Africa, GERSTAECKER, p. 52, JB. Hamb. Anst. ix, n. sp.
- Leptodema*, n. g. for *L. hirtum*, p. 533, *acanthocephalum*, p. 534, n. spp., Trop. Africa; CARLINI, Ann. Mus. Genov. (2) xii.
- Onccephalus insignis*, E. Africa, GERSTAECKER, p. 55, JB. Hamb. Anst. ix; *O. vaulogeri*, Algeria, MONTANDON, p. 272, Rev. d'Ent. xi : n. spp.
- Marcanaspis*, n. g. *Ectrichodiides*, for *M. typhlops*, n. sp., Cameroons; KARSCH, p. 134, Ent. Nachr. xviii.
- Miomerocherus*, n. g. *Ectrichodiides*, for *M. scopaceus*, n. sp., Cameroons; KARSCH, p. 135, Ent. Nachr. xviii.
- Nagusta junodi*, Mozambique, MONTANDON, p. 269, Rev. d'Ent. xi, n. sp.
- Phonoctonus principalis*, E. Africa, GERSTAECKER, p. 52, JB. Hamb. Anst. xi, n. sp.
- Pirates brachypterus*, p. 54, *morosus*, *collaris*, p. 55, E. Africa, GERSTAECKER, JB. Hamb. Anst. ix; *P. conspurcatus*, Transvaal, DISTANT, p. 255, pl. ii, fig. 10, Naturalist Transvaal : n. spp.
- Ploiaria melanacantha*, Carcassonne, HORVÁTH, p. 139, Rev. d'Ent. xi, n. sp.
- Polymazus*, n. g., p. 52, for *P. singularis*, n. sp., E. Africa, p. 53; GERSTAECKER, JB. Hamb. Anst. ix.
- Raphidosoma echinatum*, E. Africa, GERSTAECKER, p. 54, JB. Hamb. Anst. ix, n. sp.
- Reduvius polystictus*, E. Africa, GERSTAECKER, p. 53, JB. Hamb. Anst. ix; *R. notabilipes*, Obock, MONTANDON, p. 271, Rev. d'Ent. xi; *R. pulvisculatus*, pl. ii, fig. 3, *sertus*, fig. 8, p. 254, *capitalis*, p. 255, fig. 1, Transvaal, DISTANT, Naturalist Transvaal : n. spp.
- Rhochmogaster*, n. g. *Ectrichodiides*, for *R. dimerus*, n. sp., Cameroons; KARSCH, p. 135, Ent. Nachr. xviii.
- Santosia semistriata*, Cameroons, KARSCH, p. 135, Ent. Nachr. xviii, n. sp.
- Sastrapada novæguineensis*, Fergusson I., TRYON, p. 23, Ann. Queensland Mus. ii, n. sp.
- Sphedanolesthes fenestriculatus*, W. Africa, KARSCH, p. 134, Ent. Nachr. xviii, n. sp.
- Vadimon bergrothi*, Mozambique, MONTANDON, p. 270, Rev. d'Ent. xi, n. sp.

## SALDIDÆ, CIMICIDÆ.

- Acanthia* : notes on the species of, in N. America; OSBORN, p. 262, Canad. Ent. xxiv.
- A. inodora*, Mexico, DUGÈS, p. 169, pl. viii, n. sp.

- Anthocoris carinulatus*, Madagascar, REUTER, p. 186, Ent. M. M. xxviii, n. sp.  
*Xylocoris humeralis*, Sign., referred to *Lasiochilus*, and redescribed ; REUTER, p. 186, Ent. M. M. xxviii.

## CAPSIDÆ.

- Food-plants of *Capsidæ*, near Washington ; HEIDEMANN (392).  
*Antias lucidus*, Argentine Rep., BERG, p. 95, An. Soc. Arg. xxxiii, n. sp.  
*Arsinotus*, n. g. (*Bryocoraria*), for *A. albipes*, n. sp., Buenos Aires ; BERG, p. 198, An. Soc. Arg. xxxiv.  
*Brachycoleus steini*, n. var. *thoracicus* ; PUTON, p. 29, Rev. d'Ent. xi.  
*Calocoris humeralis*, p. 89, *lineolatus*, p. 90, Argentine Rep., BERG, An. Soc. Arg. xxxiv, n. spp.  
*Camponotidea saundersi*, macropterous form ; PUTON, p. 28, Rev. d'Ent. xi.  
*Capsus delagrangei*, Syria, PUTON, p. 29, Rev. d'Ent. xi, n. sp.  
*Chrysodasia*, n. g. near *Lygus*, p. 400, for *C. strigifrons*, n. sp., Venezuela, p. 401 ; REUTER, Ann. Soc. Ent. Fr. lxi.  
*Cyrtocapsus femoralis*, Venezuela, REUTER, p. 394, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Dolichomiris tibialis*, Venezuela, REUTER, p. 392, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Ecritotarsus luculentus*, p. 195, *nigriclavus*, p. 196, Argentine Rep., BERG, An. Soc. Arg. xxxiv, n. spp.  
*Fulvius simoni*, Venezuela, REUTER, p. 391, Ann. Soc. Ent. Fr. lxi, n. sp.  
*Halticus minutus*, injurious in Cochín-China ; GIARD (337).  
*Helopeltis bergrothii*, Gaboon, REUTER, p. 159, Ent. M. M. xxviii, n. sp.  
*Ischnias*, n. g. (*Capsaria*), p. 193, for *I. saltensis*, n. sp., Argentine Rep., p. 194 ; BERG, An. Soc. Arg. xxxiv.  
*Linocerocoris*, n. g. near *Eucercocoris*, for *L. cariniventris*, n. sp., Cameroons, KARSCH, p. 133, Ent. Nachr. xviii.  
*Lopus flavomarginatus*, n. var. *luctuosus* ; PUTON, p. 29, Rev. d'Ent. xi.  
*Lygus aruginosus*, p. 92, *phaleratus*, p. 93, Argentine Rep., BERG, An. Soc. Arg. xxxiv, n. spp.  
*Mecomma madagascariensis*, Madagascar, REUTER, p. 185, Ent. M. M. xxviii, n. sp.  
*Oncognathus binotatus*, habits ; HOWARD, Ins. Life, v, pp. 90-92, figg.  
*Orinonotus*, n. subg., vide *Physetonotus* infra.  
*Orthotylus ochrotrichus*, = (*propinquus*, Reut.) ; SAUNDERS, Ent. M. M. xxviii, p. 125.  
*Perissobasis*, n. g., *Perissobasaria* (nov. divisio), p. 397, for *P. aurora*, n. sp., Venezuela, p. 398, REUTER, Ann. Soc. Ent. Fr. lxi.  
*Physetonotus*, n. g., with n. subg. *Orinonotus*, and with *P. (O.) simoni*, n. sp., Venezuela ; REUTER, p. 395, Ann. Soc. Ent. Fr. lxi.  
*Phytocoris riparum*, N. Italy, FERRARI, Ann. Mus. Genov. (2) xii ; *P. bergrothi*, p. 398, *tripunctatus*, p. 399, Venezuela, REUTER, Ann. Soc. Ent. Fr. lxi : n. spp.

- Pæciloscytus rubricuneus*, Argentine Rep., BERG, p. 94, An. Soc. Arg. xxxiv, n. sp.  
*Pristoneura*, n. g., *Bryocoraria*, for *P. picea*, n. sp., Venezuela ; REUTER, Ann. Soc. Ent. Fr. lxi, p. 396.  
*Resthenia* (*Callichila*) *occipitalis*, p. 83, *R. (R.) hirtula*, p. 84, *dissociata*, p. 87, Argentine Rep., BERG, An. Soc. Arg. xxxiv, n. spp.  
*Schizonotus*, n. g., *Cyllocoraria*, p. 401, for *S. dromedarius*, n. sp., Caracas, p. 402 ; REUTER, Ann. Soc. Ent. Fr. lxi.  
*Stenodema lateralis*, E. Siberia, REUTER, p. 187, Öfv. Finska Förh. xxxiii, n. sp.

## HYDROCORISÆ.

- Aphelochirus sinensis*, Ho-Chan, MONTANDON, p. 73, Rev. d'Ent. xi, n. sp.  
*Corixa zealandica*, New Zealand, HUDSON, Manual, p. 120, pl. xx, fig. 5, n. sp.  
*Enithares compacta*, E. Africa, GERSTAECKER, p. 57, JB. Hamb. Anst. ix ; *E. bergrothi*, New Caledonia, MONTANDON, p. 75, Rev. d'Ent. xi : n. spp.  
*Laccotrephes ellipticus*, E. Africa, GERSTAECKER, p. 56, JB. Hamb. Anst. ix, n. sp.  
*Mononyx asiaticus*, China, HORVÁTH, p. 136, Term. füzetek, xv, n. sp.  
*Notonecta* : fossil noticed ; SCHLECHTENDAL (800).  
*Ranatra* : characters of the Palæarctic species ; BERGROTH, p. 127, Rev. d'Ent. xi.  
*R. nodiceps*, E. Africa, GERSTAECKER, p. 57, JB. Hamb. Anst. ix, n. sp.

## HEMIPTERA-HOMOPTERA.

- [*Cf.* CARLINI (158), DISTANT (210-215), DUZEE (233-237), FERRARI (281), GERSTAECKER (323), GODING (345, 346), HORVÁTH (428), HUDSON (440), LETHIERRY (549, 550), PUTON (707, 708), SLINGERLAND (851), TOWNSEND (945), and *Coccidæ*, p. 317.]

## CICADIDÆ.

- Betulia bicolorata*, N. Guinea, DISTANT, p. 316, Ann. N. H. (6) ix, n. sp.  
*Callipsaltria bicolorata*, S. Africa, DISTANT, p. 318, Ann. N. H. (6) ix, n. sp.  
*Carineta tracta*, p. 320, *centralis*, Ecuador, *matura*, Venezuela, p. 321, DISTANT, Ann. N. H. (6) ix, n. spp.  
*Cicada viridis*, Fab., = (*D. mixta*, Kirby) ; DISTANT, p. 325, Ann. N. H. (6) ix.  
*C. flammata*, Japan, DISTANT, p. 99, pl. xiii, fig. 15, Mon. Or. Cicad. ; *C. extrema*, Swan River, p. 56, *madagascariensis*, Madagascar, p. 57, DISTANT, Ann. N. H. (6) x ; *C. timorensis*, Timor, DISTANT, p. 406, Ann. N. H. (6) x ; *C. iolanthe*, New Zealand, HUDSON, Manual, p. 119, pl. xx, fig. 3 : n. spp.

- Cosmopsaltria fœæ*, p. 101, *ficulnea*, p. 102, Burma, DISTANT, Mon. Or. Cicad., n. spp.
- Dorachosa*, n. g., p. 63, near *Tibicen*, for *D. explicata*, n. sp., Panama, p. 64; DISTANT, Ann. N. H. (6) x.
- Dundubia mixta*, note on; KIRBY, p. 304, Wien. ent. Z. xi.
- Fidicina mülleri*, Brazil, DISTANT, p. 319, Ann. N. H. (6) ix; *F. amazona*, Ega, bogotana, Bogota, p. 58, *rubricata*, Brazil, p. 59, DISTANT, Ann. N. H. (6) x : n. spp.
- Gæana* and its species, characters of, with figures of numerous species; DISTANT, pp. 104-108, Mon. Or. Cicad.
- Graptotettix thoracica*, Burma, DISTANT, p. 315, Ann. N. H. (6) ix, n. sp.
- Huechys*: the species described, and most of them figured; DISTANT, pp. 111-116, Mon. Or. Cicad.
- H. fusca*, p. 114, pl. iii, fig. 7, *lutulenta*, p. 115, pl. xiv, fig. 1, *dohertyi*, p. 116, fig. 2, Borneo, DISTANT, Mon. Or. Cicad., n. spp.
- Kanakia*, n. g., near *Malagasiasia*, for *K. typica*, n. sp., New Caledonia; DISTANT, p. 62, Ann. N. H. (6) x.
- Lembeja*, n. n., to replace *Perissoneura*; DISTANT, p. 103, Mon. Or. Cicad.
- Leptopsaltria japonica*, Japan, HORVÁTH, p. 136, Term. füzetek, xv; *L. morrisi*, E. India, DISTANT, p. 101, Mon. Or. Cicad., n. spp.
- Masupha*, n. g., near *Cicadatra*, for *M. ampliata*, p. 317, *delicata*, p. 318, n. spp., S. Africa; DISTANT, Ann. N. H. (6) ix.
- Melampsalta*: synonymy of New Zealand species, *nervosa*, Wlk., = (*cassiope*, Huds.); DISTANT, pp. 326 & 327, Ann. N. H. (6) ix. *M. nervosa*, Walk., = (*mangu*, White); DISTANT, p. 67, Ann. N. H. (6) x.
- M. exæquata*, Naga Hills, DISTANT, p. 144, pl. xv, fig. 11, Mon. Or. Cicad.; *M. labeculata*, Australia, DISTANT, p. 66, Ann. N. H. (6) x; *M. convicta*, Norfolk I., *rosacea*, New Caledonia, p. 322, *abdominalis*, *extrema*, p. 323, Australia, *rotundata*, S. Africa, p. 324, DISTANT, op. cit. ix : n. spp.
- Mogannia*: the species described and figured; DISTANT, Mon. Or. Cicad. pp. 119-122.
- M. effecta*, E. India, DISTANT, Ann. N. H. (6) ix, p. 316, n. sp.
- Platypheura testacea*, Somaliland, CARLINI, p. 537, Ann. Mus. Genov. (2) xii, n. sp.
- Pæcilopsaltria trimeni*, p. 313, *peringueyi*, p. 314, S. Africa, DISTANT, Ann. N. H. (6) ix, n. spp.
- Pomponia ranssonneti*, Dist., = (*greeni*, Kirby); DISTANT, p. 325, Ann. N. H. (6) ix.
- P. japonensis*, Japan, DISTANT, p. 102, Mon. Or. Cicad., n. sp.
- Psaltoda flavescens*, Australia, DISTANT, p. 55, Ann. N. H. (6) x, n. sp.
- Psilotympana infuscata*, S. Africa, DISTANT, p. 319, Ann. N. H. (6) ix, n. sp.
- Talainga binghami*, figured; DISTANT, pl. xiii, fig. 4, Mon. Or. Cicad.
- Terpnosia*, n. g., near *Pomponia*, *T. psecas*, Wlk., = (*P. elegans*, Kirby); DISTANT, p. 325, Ann. N. H. (6) ix.

- T. pryeri*, p. 139, pl. xv, fig. 5, Japan, *andersoni*, p. 141, pl. ix, fig. 13, China, DISTANT, Mon. Or. Cicad., n. spp.
- Tettigades parva*, Argentine Rep., BERG, p. 65, Ann. N. H. (6) x, n. sp.
- Thopha sessiliba*, Australia, DISTANT, p. 314, Ann. N. H. (6) ix, n. sp.
- Tibicen primitiva*, Wlk., = (*hæmatina*, Stål), *monilifera*, Wlk., = (*maculinervis*, Stål); DISTANT, p. 325, Ann. N. H. (6) ix. *T. nubifurca*, Wlk., = (*apicalis*, Kirby); DISTANT, p. 325, t. c. *T. putoni*, n. n. for *lacteipennis*, Puton; DISTANT, p. 67, op. cit. x.
- T. (Quintilia) wealei*, S. Africa, DISTANT, p. 316, Ann. N. H. (6) ix; *T. egæ*, Amazons, p. 64, *pumilus*, New Caledonia, p. 65, DISTANT, op. cit. x : n. spp.
- Tympanoterpes sodalis*, Wlk., = (*Fid. vultur*, Wlk.); DISTANT, p. 67, Ann. N. H. (6) x.
- T. colombiæ*, Bogota, p. 60, *bergi*, Argentine Rep. p. 61, DISTANT, Ann. N. H. (6) x, n. spp.

## FULGORIDÆ.

- Birdantis pallescens*, Batchian, DISTANT, p. 276, Tr. E. Soc. 1892, n. sp.
- Copsyrna ochracea*, Perak, DISTANT, p. 286, Tr. E. Soc. 1892, n. sp.
- Cenestra ligata*, Perak, pl. xiii, fig. 3, *copulanda*, Java, DISTANT, p. 285, Tr. E. Soc. 1892, n. spp.
- Cynthila viridimaculata*, Perak, DISTANT, p. 275, Tr. E. Soc. 1892, n. sp.
- Dardus albomaculatus*, p. 282, *obscurus*, p. 283, Australia, DISTANT, Tr. E. Soc. 1892, n. spp.
- Delphax lugubris*, ♀ noticed; LETHIERRY, p. 70, Rev. d'Ent. xi.
- Desudaba maculata*, Australia, DISTANT, p. 277, Tr. E. Soc. 1892, n. sp.
- Dichoptera nubila*, p. 277, *hampsoni*, E. India, *nasuta*, Celebes, p. 278, DISTANT, Tr. E. Soc. 1892, n. spp.
- Dictyophora unicolor*, n. var. *vittata*, PUTON, p. 30, Rev. d'Ent. xi.
- D. fuminervis*, E. India, LETHIERRY, p. 208, Bull. Soc. Z. Fr. 1892; *D. præferrata*, *bifasciata*, *insignis*, Peak Downs, Australia, DISTANT, p. 279, Tr. E. Soc. 1892 : n. spp.
- Eriphyle ? paradoxa*, E. Africa, GERSTAECKER, p. 58, JB. Hamb. Anst. ix, n. sp.
- Eurybrachys apicata*, India, DISTANT, p. 281, Tr. E. Soc. 1892, n. sp.
- Flata radiata*, Borneo, *labeculata*, Celebes, p. 284, *F. (Colobesthes ?) semanga*, Malay Penins., p. 285, pl. xiii, fig. 6, DISTANT, Tr. E. Soc. 1892, n. spp.
- Kandiana*, n. g., near *Messena*, for *K. lewisi*, n. sp., Ceylon, pl. xiii, fig. 2, DISTANT, p. 280, Tr. E. Soc. 1892.
- Loxocephala castanea*, E. India, DISTANT, p. 281, Tr. E. Soc. 1892, n. sp.
- Messena radiata*, E. India, DISTANT, p. 280, pl. xiii, fig. 1, Tr. E. Soc. 1892, n. sp.
- Mycterodus orthocephalus*, ♂ described; FERRARI, p. 568, Ann. Mus. Genov. (2) xii.
- Ecclus decens*, oviposition in *Yucca*; TOWNSEND, Psyche, vi, p. 353.

- Oliarus angusticeps*, Japan, HORVÁTH, p. 137, Term. füzetek. xv, n. sp.  
*Platybrachys signata*, p. 281, *insignis*, Australia, *arata*, Australia and Samoa, p. 282, DISTANT, Tr. E. Soc. 1892, n. spp.  
*Phromnia parvata*, Philippines, p. 283, *montivaga*, Borneo, p. 284, pl. xiii, fig. 5, DISTANT, Tr. E. Soc. 1892, n. spp.  
*Ricania (Pochazia) flavocostata*, Borneo, DISTANT, p. 283, Tr. E. Soc. 1892, n. sp.  
*Scamandra diana*, Sangir, DISTANT, p. 276, pl. xiii, fig. 4, Tr. E. Soc. 1892, n. sp.

#### CERCOPIDÆ.

- Isthmia* (?) *elegantula*, E. Africa, GERSTAECKER, p. 57, JB. Hamb. Anst. ix, n. sp.  
*Phymatostetha deschampsii*, E. India, LETHIERRY, p. 208, Bull. Soc. Z. Fr. 1892, n. sp.

#### MEMBRACIDÆ.

- Synopsis of the N. American genera ; GODING, Tr. Am. Ent. Soc. xix, pp. 253-260.  
*Centrodontus*, n. g., *Centrotinae*, for *Gargara atlas*, Goding, n. sp., infra ; GODING, Ent. News, iii, p. 201.  
*Gargara atlas*, California, GODING, p. 110, Ent. News, iii, n. sp.  
*Heliria scalaris*, Colorado, GODING, p. 200, Ent. News, iii, n. sp.  
*Platycotis minax*, California, GODING, p. 109, Ent. News, iii, n. sp.  
*Potnia asodalis*, California, GODING, p. 110, Ent. News, iii, n. sp.  
*Pubilia bicinctura*, Colorado, GODING, p. 200, Ent. News, iii, n. sp.  
*Stictocephala gillettei*, Colorado, GODING, Ent. News, iii, pp. 108 & 200, n. sp.  
*Stictopelta nova*, California, p. 110, *marmorata*, New Mexico, p. 201, GODING, Ent. News, iii, n. spp.  
*Telamona rileyi*, California, GODING, p. 108, Ent. News, iii, n. sp.

#### JASSIDÆ.

- Tabulation of the N. American genera ; DUZEE, pp. 295-300, Tr. Am. Ent. Soc. xix.  
*Acinopterus*, n. g., near *Athysanus*, p. 307, for *A. acuminatus*, n. sp., N. America, p. 308, DUZEE, Psyche, vi.  
*Agallia sanguinolenta*, oviposition and larvæ noticed ; OSBORN, Canad. Ent. xxiv, p. 35.  
*Athysanus comma*, *bicolor*, p. 114, *obtus* (altered to *obtus*, p. 156), p. 115, N. America, DUZEE, Canad. Ent. xxiv, n. spp.  
*Chlorotettix*, n. g., near *Thamnotettix*, type *Bythoscopus unicolor*, Fitch, p. 306, with *C. viridius*, p. 309, *galbanatus*, p. 310, n. spp., N. America ; DUZEE, Psyche, vi.

- Deltocephalus ecchellii*, Tyrol, FERRARI, p. 574, Ann. Mus. Genov. (2) xii;  
*D. flavocostatus*, Mississippi, DUZEE, p. 116, Canad. Ent. xxiv;  
*D. simplex*, *osborni*, p. 304, *cinerosus*, *signatifrons*, p. 305, *weedi*,  
 p. 306, N. America, DUZEE, Tr. Am. Ent. Soc. xix : n. spp.  
*Eupteryx zelleri*, n. var. *hipposideros*, HORVÁTH, p. 140, Rev. d'Ent. xi,  
 n. sp.  
*Eutettix*, n. g., type *Thamnotettix lurida*, Duzee; DUZEE, Psyche, vi,  
 p. 307.  
*E. pictus*, p. 301, *marmoratus*, p. 302, N. America, DUZEE, Tr. Am. Ent.  
 Soc. xix, n. spp.  
*Gnathodus impictus*, *abdominalis*, New Jersey, DUZEE, p. 113, Canad.  
 Ent. xxiv, n. spp.  
*Goniagnathus elongatus*, E. India, LETHIERRY, p. 209, Bull. Soc. Z. Fr.  
 1892, n. sp.  
*Henschia*, n. g., near *Aconura*, for *H. seticauda*, n. sp., Hungary; LETHI-  
 RRY, Rev. d'Ent. xi, p. 69.  
*Macropsis indica*, Mahé, LETHIERRY, p. 209, Bull. Soc. Z. Fr. 1892, n. sp.  
*Phlepsius latifrons*, p. 66, *uhleri*, p. 67, *cinereus*, p. 68, *pallidus*, p. 69,  
*fuscipennis*, p. 70, *truncatus*, p. 72, *incisus*, p. 73, *punctiscriptus*, p. 75,  
*apertus*, *humidus*, p. 76, *nebulosus*, p. 77, *spatulatus*, p. 78, *ovatus*,  
 p. 79, *superbus*, p. 81, DUZEE, Tr. Am. Ent. Soc. xix, n. spp.  
*Tettigonia mitrata*, E. Africa, GERSTAECKER, p. 58, JB. Hamb. Anst. ix,  
 n. sp.  
*Thamnotettix ghilianii*, Turin, FERRARI, p. 573, Ann. Mus. Genov. (2)  
 xii; *T. brevissimus*, E. India, LETHIERRY, p. 209, Bull. Soc. Z. Fr.  
 1892; *T. inornata*, New York, DUZEE, p. 303, Tr. Am. Ent. Soc.  
 xix; *T. smithi*, *longiseta*, p. 266, *gillettii*, p. 267, *montanus*, p. 268,  
 N. America, DUZEE, Canad. Ent. xxiv : n. spp.  
*Ulopa canadensis*, Canada, DUZEE, p. 301, Tr. Am. Ent. Soc. xix, n. sp.

## PSYLLIDÆ.

- Bactericera maritima*, S. France, HORVÁTH, p. 140, Rev. d'Ent. xi, n. sp.  
*Diaphorina ægyptiaca*, Cairo, PUTON, p. 30, Rev. d'Ent. xi, n. sp.  
*Psylla pyricola*, habits and structure; SLINGERLAND (851).  
*Trioza alacris*, ravages on *Laurus nobilis*; THOMAS (926).

## APHIDIDÆ.

- Pemphigiens*: two forms of biological cycles in this group; HORVÁTH  
 (427).  
*Lachnus pini* and *pineti*, males described, *pini*, n. var. *cebræ*, p. 74;  
 CHOLODKOVSKY, Zool. Anz. xv, p. 67  
*L. farinosus*, St. Petersburg, CHOLODKOVSKY, Zool. Anz. xv, p. 74, n. sp.  
*Phylloxera vastatrix*: abstract of life-history; TEICH, KB. Ver. Riga,  
 xxxiv, pp. 36-38: habits; BEHR, Zoe, ii, pp. 305-310: sucking-  
 apparatus, &c.; KRASSILTSCHIK (519).

- Siphonophora cucurbitæ*, habits ; WEBSTER, p. 311, *Canad. Ent.* xxiv. *S. tilie*, mode of deposition of eggs ; HOWARD, p. 249, *P. E. Soc. Wash.* ii.
- Toxoptera graminum*, notes on ; WEBSTER, *Ins. Life*, iv, pp. 245-248.

## COCCIDÆ, ALEUROIDIDÆ.

- [*Cf.* COCKERELL (178, 179), COQUILLETT (184), DOUGLAS (224, 625), MASKELL (590, 591, 592), MAYER (594), MORGAN (179, 625, 626), NEWSTEAD (637), TARGIONI-TOZZETTI (912, 913), TOWNSEND (949).]
- Mode of preparing and mounting *Coccidæ* ; MASKELL, *Tr. N. Z. Inst.* xxiv, pp. 3-5.
- General information about *Coccidæ* : their enemies, &c. ; COCKERELL (178).
- For localities of a large number of species of *Coccidæ*, see MASKELL, *Ent. M. M.* xxviii, pp. 69-71.
- Coccidæ* of California ; COQUILLETT, *Bull. Dep. Agric. Ent.* xxvi, pp. 13-36.
- Note on the "spinnerets" of *Diaspidinæ* ; MASKELL, *Tr. N. Z. Inst.* xxiv, pp. 5 & 6.
- Acanthococcidæ* and *Dactylopidæ*, generic and group distinctions discussed ; MASKELL, p. 30, pl. iv, figg. 11-17, *Tr. N. Z. Inst.* xxiv.
- Aleurodicus*, n. g. for *A. anonæ*, n. sp., Demerara, and *Aleurodes cocois*, Curt. ; DOUGLAS & MORGAN, *Ent. M. M.* xxviii, p. 32, pl. i.
- Aonidia blanchardi*, Sahara, on date-palm, TARGIONI, p. 69, *Mém. Soc. Zool.*, and *Bull. Ent. Ital.* xxiv, pp. 170-188, with developmental history : n. sp.
- Aspidiotus aurantii*, synonymical note ; MASKELL, *Tr. N. Z. Inst.* xxiv, p. 12.
- A. subrubescens*, p. 9, pl. i, figg. 1 & 2, *fodiens*, figg. 3 & 4, *bossiæ*, figg. 5 & 6, p. 10, *rossi*, p. 11, figg. 7-9, Australia, MASKELL, *Tr. N. Z. Inst.* xxiv, n. spp.
- Brachyscelidæ* : notes on the group ; MASKELL, p. 53, *Tr. N. Z. Inst.* xxiv.
- Carteria melaleucæ*, p. 54, pl. xii, figg. 1-10, *acaciæ*, p. 56, figg. 11-15, Australia, MASKELL, *Tr. N. Z. Inst.* xxiv, n. spp.
- Ceroplastes* : spp. from Mexico and their parasites noticed ; TOWNSEND, *Zoe*, iii, pp. 255-257.
- Chionaspis* : note on species of ; MORGAN, *Ent. M. M.* xxviii, pp. 14-16.
- C. eugeniæ*, p. 14, pl. i, figg. 10-12, *nitida*, p. 15, figg. 13 & 14, Australia, MASKELL, *Tr. N. Z. Inst.* xxiv, n. spp.
- Coccus cacti* : observations on anatomy of, and production of wax ; MAYER (594).
- Celostoma compressum*, New Zealand, p. 45, pl. xi, figg. 1-8, *immane*, p. 49, pl. xi, figg. 9-12, Australia, MASKELL, *Tr. N. Z. Inst.* xxiv, n. spp.

- Ctenochiton elæocarpi*, ♂, p. 17, *depressum*<sup>2</sup>, small form, p. 19, described ; MASKELL, Tr. N. Z. Inst. xxiv.
- C. daerydii*, N. Zealand ; MASKELL, p. 18, pl. ii, figg. 1-4, Tr. N. Z. Inst. xxiv, n. sp.
- Cylindrococcus*, n. g. (position doubtful), p. 41, for *C. casuarinæ*, p. 41, pl. ix, *spiniferus*, p. 43, pl. x, figg. 1-7, sp. ?, p. 44, fig. 8, n. spp. ; Australia, MASKELL, Tr. N. Z. Inst. xxiv.
- Dactylopius albizziae*, p. 31, pl. vi, figg. 3-10, *hibbertiae*, p. 32, figg. 11-14, *acaciae*, p. 33, figg. 15 & 16, Australia, *iceryoides*, New Zealand, p. 33, pl. vii, figg. 1-5, *globosus*, p. 34, figg. 6-8, *eucalypti*, p. 35, figg. 9-13, Australia, *graminis*, S. Africa, p. 36, pl. x, figg. 9-12, MASKELL, Tr. N. Z. Inst. xxiv, n. spp.
- Diaspis lanatus*, Jamaica, MORGAN, p. 136, J. Inst. Jamaica, i, n. sp.
- Eriococcus hokeriae*, apterous ♂ noticed and figured, p. 26, pl. iv, figg. 9 & 10, MASKELL, Tr. N. Z. Inst. xxiv ; *E. fraxini*, referred to *Ripersia*, NEWSTEAD, p. 147, Ent. M. M. xxviii.
- E. phyllocladi*, New Zealand, p. 25, pl. iv, figg. 1-4, *confusus*, Australia, p. 26, figg. 5-8, *fagicorticis*, N. Zealand, pl. v, figg. 1-5, *eucalypti*, p. 27, figg. 6-14, *tepperi*, Australia, figg. 15-17, p. 29, MASKELL, Tr. N. Z. Inst. xxiv, n. spp.
- Fiorinia acaciae*, Australia, MASKELL, p. 16, pl. i, figg. 15-17, Tr. N. Z. Inst. xxiv, n. sp.
- Frenchia*, n. g. (*Brachyscelidae*), p. 56, for *F. casuarinæ*, n. sp., Australia, p. 57, pl. xiii, MASKELL, Tr. N. Z. Inst. xxiv.
- Gossyparia mannifera* and manna in Algeria ; GIARD, p. cclxxiii, Bull. Soc. Ent. Fr. lxi.
- Icerya koebelei*, Australia, MASKELL, Ent. M. M. xxviii, p. 184, n. sp.
- Inglisia inconspicua*, New Zealand, MASKELL, p. 19, pl. ii, figg. 5-7, Tr. N. Z. Inst. xxiv, n. sp.
- Lecanium capreae*, descriptive note ; DOUGLAS, Ent. M. M. xxviii, p. 278. *L. rubi*, ♀ described ; DOUGLAS, p. 105, t. c.
- L. minimum*, *assimile*, England, NEWSTEAD, p. 141, Ent. M. M. xxviii ; *L. baccatum*, Australia, MASKELL, p. 20, pl. ii, figg. 8-16, Tr. N. Z. Inst. xxiv ; *L. begoniae*, Demerara, DOUGLAS, p. 209, pl. iii, fig. 4, Ent. M. M. xxviii : n. spp.
- Leucaspis pini*, note on scales of ; MORGAN, Ent. M. M. xxviii, p. 13.
- Monophlebus crawfordi*, notes on ; MASKELL, p. 51, Tr. N. Z. Inst. xxiv.
- Pinnaspis*, n. g. or subg. of *Mytilaspis*, for part of *Mytilaspis* ; COCKERELL, J. Inst. Jamaica, i, p. 136.
- Planchonia styphellicae*, Australia, MASKELL, p. 24, pl. iii, figg. 10-18, Tr. N. Z. Inst. xxiv, n. sp.
- Poliaspis exocarpi*, Australia, MASKELL, p. 17, Tr. N. Z. Inst. xxiv, n. sp.
- Prosopophora*, n. g. for *P. dendrobii*, n. sp., Demerara ; DOUGLAS, p. 207, pl. iii, fig. 1, Ent. M. M. xxviii.
- Pseudococcus socius*, England (*Pulvinaria ribesiae*, Doug., ♂ is the ♂ of this), NEWSTEAD, Ent. M. M. xxviii, p. 144, n. sp.

- Pseudoparlatoria*, n. g. or subg. of *Aspidiotus*, for *P. ostreata*, n. sp., Jamaica ; COCKERELL, p. 136, J. Inst. Jamaica, i.
- Pulvinaria maskelli*, life history ; OLIFF, p. 176, pl. xi, Agric. Gaz. N.S.W.
- P. persicæ*, England, NEWSTEAD, p. 142, Ent. M. M. xxviii, n. sp.
- Rhizococcus grandis*, Australia, MASKELL, p. 29, pl. vi, figg. 1 & 2, Tr. N. Z. Inst. xxiv, n. sp.
- Ripersia tomlinii*, habits noticed ; DALE, Ent. M. M. xxviii, p. 219. *R. formicicola*, habitat in certain ants-nests ; SMITH, Ent. M. M. xxviii, p. 307.
- R. pulveraria*, England, p. 145, *tomlinii*, Guernsey, p. 146, NEWSTEAD, Ent. M. M. xxviii ; *R. rumicis*, p. 37, pl. viii, figg. 1-3, *formicicola*, p. 38, pl. viii, figg. 4-7, New Zealand, MASKELL, Tr. N. Z. Inst. xxiv : n. spp.
- Signoretia luzulæ*, ♂ described ; NEWSTEAD, p. 142, Ent. M. M. xxviii.
- S. atriplicis*, Australia, MASKELL, p. 23, pl. iii, figg. 1-9, Tr. N. Z. Inst. xxiv, n. sp.
- Sphærococcus*, n. g. undefined, for *S. casuarinæ*, pl. viii, figg. 8-20, n. sp., Australia ; MASKELL, p. 39, Tr. N. Z. Inst. xxiv.
- Uhleria floriniæ*, synonymy and habitats ; MORGAN, Ent. M. M. xxviii, p. 12.

(F.) *NEUROPTERA.*

Tabulation of the suborders and genera of N. American Neuropteroid insects, and Catalogue of the species ; BANKS, Tr. Am. Ent. Soc. xix, pp. 327-373.

## TRICHOPTERA.

[Cf. LINDEN (563), MARTIN (585).]

List of *Trichoptera* of the Department of the Indre, with notes on habits and dates ; MARTIN, Rev. d'Ent. x, pp. 1-23 & 76.

On the earliest stages of a Phryganeid larva ; LINDEN, Biol. Centralbl. xii, pp. 523-527.

*Heteroplectron* : systematic position queried ; BANKS, p. 373, Tr. Am. Ent. Soc. xix.

*Hydroptila maclachlani*, ♂ characters ; MORTON, Ent. M. M. xxviii, p. 108.

*Philopotamus montanus*, var. *chrysopterus*, variation in neuration ; MACLACHLAN, Ent. M. M. xxviii, p. 182.

## PLANIPENNIA.

[Cf. BANKS (33), MACLACHLAN (574), VERHOEFF (970) ]

*Bittacus tipularius*, habits ; MARTIN, Rev. Sci. Bourb. v, pp. 46-52.

*Chrysopa ramburi*, habits and localities ; MACLACHLAN, Ent. M. M. xxviii, p. 50.

*Chrysopa oculata*, = (*illepida*, *fulvibucca*, *chi*, *ypsilon*, *mississippiensis*) ; BANKS, p. 373, Tr. Am. Ent. Soc. xix.

*Formicaleo wilsoni*, Hawaiian Is., MACLACHLAN, p. 178, Ann. N. H. (6) x, n. sp.

*Hemerobius subnebulosus*, development of colour in pupa ; VERHOEFF, p. 297, Ent. Nachr. xviii.

*Nothochrysa californica*, N. America, BANKS, p. 373, Tr. Am. Ent. Soc. xix, n. sp.

## THYSANURA and COLLEMBOLA (APTERA).

[Cf. HARVEY (390, 391), REUTER (734), STUMMER-TRAUNFELS (907).]

The trophi of *Japyx*, *Campodea*, *Collembola*, *Machilides*, and *Lepismides*, discussed and figured ; STUMMER-TRAUNFELS, SB. Ak. Wien, c, Abth. i, pp. 216-235, pls. i & ii.

Note on some *Thysanura* observed in connection with ants'-nests ; MONIEZ (616).

- Isotoma grandiceps*, Siberia, REUTER, p. 229, *Œfv. Finska Förh.* xxxiii, n. sp.  
*Sminthurus viridis*, n. var. *tripunctatus*, REUTER, p. 227, *Œfv. Finska Förh.* xxxiii, p. 227.  
*S. sex-maculatus*, Maine, HARVEY, p. 169, *Ent. News*, iii, n. sp.  
*Templetonia americana*, Maine, HARVEY, *Ent. News*, iii, p. 57, n. sp.  
*Tomocerus vulgaris*, n. var. *sibiricus*; REUTER, p. 228, *Œfv. Finska Förh.* xxxiii.

## MALLOPHAGA, TERMITIDÆ, PSOCIDÆ.

- [*Cf.* GRASSI (359), HUDSON (440), KELLOGG (478), MARTIN (589).]  
*Mallophaga*: notes on classification, and characters of genera; KELLOGG, *Tr. Kansas Ac.* xii, pp. 46–48.  
 Habits and social relations of *Termitidæ* in Sicily; GRASSI (359).  
*Psocides* of l'Indre, with notes on habits; MARTIN, pp. 285–288, *Rev. d'Ent.* xi.  
*Psocus zealandicus*, New Zealand, HUDSON, *Manual*, p. 107, pl. xvi, fig. 2, n. sp.

## PERLIDÆ.

- [*Cf.* MARTIN (588), NUNNEY (649), ROSTOCK (781).]  
 List of *Perlidae* of l'Indre, with notes on habits; MARTIN, *Rev. d'Ent.* xi, p. 198.  
 Notes on and brief characters of British *Perlidae*; NUNNEY, *Sci. Goss.* 1892, pp. 35, &c.  
*Capnodes*, n. g. for *C. schilleri*, n. sp., Dresden; ROSTOCK, p. 1, pl., *Berl. Ent. Zeit.* xxxvii.

## EPHEMERIDÆ.

- [*Cf.* EATON, 241, 242, 243, 347).]  
*Baëtis salvini*, ♂ imago described; EATON, p. 13, *Biol. Centr. Am. Neuropt.*  
*Bleptus fasciatus*, subimago described; EATON, p. 303, *Ent. M. M.* xxviii.  
*Callibaëtis montanus*, ♀ subimago described; EATON, p. 15, *Biol. Centr. Am. Neuropt.*  
*Choroterpes exiguus*, Tenasserim Valley, EATON, p. 189, *Tr. E. Soc.* 1892;  
*C. inornata*, Mexico, pl. i, fig. 5, *nervosa*, fig. 6, Guatemala, EATON, p. 6, *Biol. Centr. Am. Neuropt.* : n. spp.  
*Dipteromimus tipuliformis*, subimago noticed; EATON, p. 302, *Ent. M. M.* xxviii.  
*Euthyplocia hecuba*, figured, pl. i, fig. 3, ♂ imago described, p. 3; EATON, *Biol. Centr. Am. Neuropt.* *E. sikorai*, species of large size; VAYSSIÈRE, *CR. Ass. Sci. Fr.* xx, pt. 1, p. 243.  
*Ephemerella strigata*, Japan, EATON, p. 302, *Ent. M. M.* xxviii; *E. remensa*, p. 410, *consors*, p. 412, *E. India*, EATON, *J. A. S. B.* lx; *E. pulcherrima*, Tenasserim Valley, EATON, p. 185, *Tr. E. Soc.* 1892 : n. spp.  
 1892. [VOL. XXIX.]

- Hagenulus monstratus*, Tenasserim Valley, EATON, p. 189, Tr. E. Soc. 1892, n. sp.
- Hexagenia mexicana*, ♂ imago figured and described ; EATON, p. 5, pl. i, fig. 4, Biol. Centr. Am. Neuropt.
- Homeoneuria salvinia*, figured, pl. i, fig. 2 ; EATON, Biol. Centr. Am. Neuropt.
- Lachlania lucida*, figured, Biol. Centr. Am. Neuropt. pl. i, fig. 1.
- Leptohyphes brevissimus*, Guatemala, EATON, p. 12, pl. i, fig. 9, Biol. Centr. Am. Neuropt., n. sp.
- Palingenia robusta*, p. 407, *minor*, p. 408, E. India, EATON, J. A. S. B. lx, n. spp.
- Potamanthus formosus*, Tenasserim Valley, EATON, p. 186, Tr. E. Soc. 1892, n. sp.
- Rhoënanthus amabilis*, Tenasserim Valley, EATON, p. 188, Tr. E. Soc. 1892, n. sp.
- Siphylurus binotatus*, Japan, EATON, p. 302, Ent. M. M. xxviii, n. sp.
- Thraulius mexicanus*, ♀ imago, *lepidus*, ♂ ♀ described ; EATON, p. 8, Biol. Centr. Am. Neuropt.
- T. primanus*, Mexico, pl. i, fig. 7, *versicolor*, Costa Rica and Panama, *valens*, Panama, *hilaris*, Mexico, p. 8, EATON, Biol. Centr. Am. Neuropt. : n. spp.
- Tricorythus explicatus*, Mexico, EATON, p. 11, pl. i, fig. 8, Biol. Centr. Am. Neuropt., n. sp.

## ODONATA.

- [Cf. CALVERT (150), CHATIN (165, 166), KARSCH (466, 467, 468), MARTIN (585), SELYS (824, 825).]
- Odonata* of Burma, with many notes ; SELYS, Ann. Mus. Genov. (2) x, pp. 433 518.
- Revision of the African *Gomphines* ; SELYS, pp. 86–107, Ann. Ent. Belg. xxxvi.
- Nature of respiration of larva of *Æschna* ; MARTIN, Bull. Soc. Philom. (8) iv, p. 122.
- Elipharinx* and *Hypopharynx* in *Odonata* ; SMITH, p. 326, P. Am. Ass. xl.
- Aciagrion*, n. subg. for part of *Pseudagrion*, p. 509, with *A. pallidum*, n. sp., Burma. p. 512 ; SELYS, Ann. Mus. Genov. (2) x.
- Æschna rileyi*, Kilimanjaro, CALVERT, p. 164, Tr. Am. Ent. Soc. xix, n. sp.
- Amphieschna*, Selys : composition and characters ; KARSCH, p. 251, Ent. Nachr. xviii.
- Amphithemis*, n. subg., p. 454, near *Lyriothemis*, for *A. curvistyla*, p. 455, *vacillans*, p. 457, n. spp., Burma ; SELYS, Ann. Mus. Genov. (2) x.
- Anax papuensis* : characters ; KARSCH, p. 250, Ent. Nachr. xviii.
- Anisopleura furcata*, Burma, SELYS, p. 488, Ann. Mus. Genov. (2) x, n. sp.

- Argiolestes melanothorax*, Burma, SELYS, p. 500, Ann. Mus. Genov. (2) x, n. sp.
- Brachydiplax gestroi*, Burma, SELYS, p. 451, Ann. Mus. Genov. (2) x, n. sp.
- Calicnemis chromothorax*, p. 502, *erythromelas*, p. 505, Burma, SELYS, Ann. Mus. Genov. (2) x, n. spp.
- Crenigomphus*, n. g. for part of *Onychogomphus*, p. 97, with *C. denticulatus*, n. sp., Shoa; SELYS, Ann. Ent. Belg. xxxvi.
- Deielia fasciata*, Kirby: habitat and systematic position discussed; MACLACHLAN, Ann. N. H. (6) x, p. 177.
- Diplax dilatata*, St. Helena, CALVERT, p. 161, Tr. Am. Ent. Soc. xix, n. sp.
- Disparoneura abbotti*, Kilimanjaro, CALVERT, p. 164, Tr. Am. Ent. Soc. xix, n. sp.
- Echo incarnata*, China, KARSCH, p. 455, Berl. Ent. Zeit. xxxvi, n. sp.
- Gynacantha bayadera*, Burma, GESTRO, p. 483, Ann. Mus. Genov. (2) x; *G. limbalis*, p. 252, *musa*, p. 254, Java, KARSCH, Ent. Nachr. xviii: n. spp.
- Idionyx yolanda*, *optata*, males described; SELYS, pp. 470-473, Ann. Mus. Genov. (2) x.
- Isomma*, n. g. (Legion, *Lindenia*), p. 104, for *I. hieroglyphicum*, n. sp.; Nossibé, p. 105; SELYS, Ann. Ent. Belg. xxxvi.
- Lepthemis blackburni*: systematic position discussed; MACLACHLAN, Ann. N. H. (6) x, p. 177.
- Leptogomphus nietneri*, description of ♂; SELYS, p. 474, Ann. Mus. Genov. (2) x.
- L. ? maculivertex*, Burma, SELYS, p. 478, Ann. Mus. Genov. (2) x, n. sp.
- Lestes nodalis*, p. 496, *umbrina*, p. 497, *L. ? bilineata*, p. 498, Burma, SELYS, Ann. Mus. Genov. (2) x, n. spp.
- Libella testacea*, n. race, *chrysis*, SELYS, p. 462, Ann. Mus. Genov. (2) x.
- Macromia paula*, Cameroons, KARSCH, p. 15, Berl. Ent. Zeit. xxxvii, n. sp.
- Matrona kricheldorffi*, China, KARSCH, p. 456, Berl. Ent. Zeit. xxxvi, n. sp.
- Megalagrion blackburni*, variation in Lanai; MACLACHLAN, Ann. N. H. (6) x, p. 178.
- Mnais andersoni*, description of sexes; SELYS, pp. 485 & 486, Ann. Mus. Genov. (2) x.
- Onychogomphus aequistylus*, p. 88, *fritillarius*, p. 89, *obliteratus*, p. 92, Madagascar, SELYS, Ann. Ent. Belg. xxxvi, n. spp.
- Orogomphus speciosus*, Burma, SELYS, p. 481, Ann. Mus. Genov. (2) x, n. sp.
- Orthetrum truncatum*, *abbotti*, Kilimanjaro, CALVERT, p. 162, Tr. Am. Ent. Soc. xix, n. spp.
- Platygomphus feæ*, Burma, SELYS, p. 479, Ann. Mus. Genov. (2) x, n. sp.
- Pseudagrion azureum*, Burma, SELYS, p. 513, Ann. Mus. Genov. (2) x, n. sp.

*Rhinocypha iridea*, Burma, SELYS, p. 492, Ann. Mus. Genov. (2) x, n. sp.

*Rhyothemis marcia* and *variegata* are the sexes of one species, *phyllis*, distinguished therefrom; SELYS, pp. 440-444, Ann. Mus. Genov. (2) x.

*R. aterrima*, Borneo, SELYS, p. 445, Ann. Mus. Genov. (2) x, n. sp.

*Thore concinna*, MacLachlan, = (*Sapho pulchella*, Kirb.) ; MACLACHLAN, p. 456, Berl. Ent. Zeit. xxxvi.

*Trithemis aurora*, *intermedia*, *yerburii*, synonymy discussed; SELYS, p. 465, Ann. Mus. Genov. (2) x.

*T. limbata*, Burma, p. 463, *liturata*, Celebes, p. 464, *dryas*, Burma, p. 465, SELYS, Ann. Mus. Genov. (2) x, n. spp.

*Urothemis brevipennis*, ♂ described; SELYS, p. 469, Ann. Mus. Genov. (2) x.

## (G.) ORTHOPTERA.

[Cf. ADELUNG (3), BATESON & BRINDLEY (42), BLATCHLEY (104, 105), BLATHWAYT (107), BOLIVAR (110, 710), BRONGNIART (132, 134), BRUNER (135), BRUNER, COQUILLET, & OSBORN (136), BRUNNER (137), BRUNNER & REDTENBACHER (138), CHOLODKOVSKY (173), DISTANT (210), DOHRN (222), EBERLI (244), FINOT (282), GRIFFINI (361), HEYMONS (404), KARSCH (469-472), KRAUSS (520, 521), KÜNCKEL (529-532), LATASTE (540), PICTET & SAUSSURE (692), RATH (713), REDTENBACHER (717), SAUSSURE (210, 794, 795), SCUDDER (812, 816), SELYS (826), TEPPER (916, 917), WERNER (1002).]

Notes on the *Orthoptera* of Ceylon; BRUNNER, pp. 337-339, Ent. Nachr. xviii.

Self-mutilation of carnivorous *Orthoptera*; WERNER (1002).

*Hemimerus talpoides*, systematic position queried; SHARP, Ent. M. M. xxviii, p. 212.

## FORFICULIDÆ.

*Dermaptera* or *Dermoptera*, orthography discussed; KRAUSS & MIK, pp. 164-169, Wien. ent. Z. xi.

*Forficula auricularia*, oviposition, reluctance for flight; BLATHWAYT, Int. J. Micr. (3) ii, pp. 7-16, pls. i & ii: variation in ♂ forceps; BATESON & BRINDLEY, P. Z. S. 1892, p. 586.

## BLATTIDÆ.

*Anaptycha*, n. g., *Ectobiidæ*, for *A. bipunctulata*, n. sp., St. Vincent, pl. xv, fig. 1; BRUNNER, P. Z. S. 1892, p. 202.

*Deropeltis bueana*, Cameroons, KARSCH, p. 65, Berl. Ent. Zeit. xxxvii, n. sp.

*Epilampra brevis*, St. Vincent, BRUNNER, p. 203, pl. xv, fig. 3, P. Z. S. 1892, n. sp.

*Holocampsia simonyi*, Tenerife, KRAUSS, p. 165, Zool. Anz. xv, n. sp.

*Homalopteryx laminata*, St. Vincent, BRUNNER, p. 204, pl. xv, fig. 4, P. Z. S. 1892, n. sp.

*Loboptera fortunata*, Canaries, KRAUSS, p. 165, Zool. Anz. xv, n. sp.

*Nocticola*, n. g., p. 29, for *N. simoni*, *cæca*, n. spp., found in caves in the Philippines, pp. 32 & 33, pl. i; BOLIVAR, Ann. Soc. Ent. Fr. lxi.

- Parasphæria nigra*, St. Vincent, BRUNNER, p. 206, pl. xv, fig. 7, P. Z. S. 1892, n. sp.
- Periplaneta truncata*, Canaries, &c., &c., KRAUSS, p. 165, Zool. Anz. xv, n. sp.
- Phyllodromia germanica*, embryology; CHOLODKOVSKY (173).
- Pseudophyllodromia semivitrea*, St. Vincent, BRUNNER, p. 203, pl. xv, fig. 2, P. Z. S. 1892, n. sp.
- Rhyparobia*, n. g. for *Panchlora maderæ*; KRAUSS, p. 165, Zool. Anz. xv.
- Stylopyga antillarum*, St. Vincent, BRUNNER, p. 204, pl. xv, fig. 5, P. Z. S. 1892, n. sp.

## MANTIDÆ.

- Achlæna*, n. g. (*Mantides*), p. 149, for *A. crypsichroma*, n. sp., Cameroons, p. 150; KARSCH, Ent. Nachr. xviii.
- Amorphoscelis annulipes*, Cameroons, KARSCH, p. 145, Ent. Nachr. xviii, n. sp.
- Chlidonoptera*, n. g., *Harpagides*, for *C. vexillum*, n. sp., Cameroons; KARSCH, p. 68, Berl. Ent. Zeit. xxxvii, and p. 150, Ent. Nachr. xviii.
- Dactylopteryx*, n. g. (*Iris* group), p. 8, for *D. flexuosa*, n. sp., Gaboon, p. 10; KARSCH, Ent. Nachr. xviii.
- Hierodula bioculata*, egg-case figured; KRAUSS, p. 146, Wien. ent. Z. xi.
- Hypsicorypha*, n. g., near *Idolomorpha*, for *H. julia*, n. sp., Tenerife; KRAUSS, p. 166, Zool. Anz. xv.
- Leptocola tenuissima*, Cameroons, KARSCH, p. 146, Ent. Nachr. xviii; *L. seriepunctata*, p. 10, *lignea*, p. 12, W. Africa, KARSCH, t. c. : n. spp.
- Litaneutria*, n. g. for *L. ocularis* (n. sp., Mexico, not described); SAUSSURE, p. 124, Soc. Ent. vii.
- Melliera*, n. g. for *M. atopogamia*, n. sp., Mexico; SAUSSURE, p. 123, Soc. Ent. vii.
- Miomantis armicollis*, Cameroons, KARSCH, p. 66, Berl. Ent. Zeit. xxvii, and Ent. Nachr. xviii, p. 148; *M. preussi*, p. 148, *gracilis*, p. 149, Cameroons, KARSCH, t. c. : n. spp.
- Mionyx*, n. g., *Thespiens*; SAUSSURE, p. 122, Soc. Ent. vii.
- Parastagmatoptera lobipes*, St. Vincent, REDTENBACHER, p. 206, pl. xv, fig. 8, P. Z. S. 1892, n. sp.
- Phitrus*, n. g., near *Danuria*, for *P. lobulipes*, n. sp., Cameroons; KARSCH, p. 149, Ent. Nachr. xviii.
- Phyllomantis*, n. g., p. 124, for *P. laurifolia*, Panama, not described; SAUSSURE, p. 124, Soc. Ent. vii.
- Polyspilota laticollis*, *flavipennis*, *truncatipennis*, Cameroons, KARSCH, Ent. Nachr. xviii, p. 147, n. spp.
- Rhombodera scutata*, W. Africa, KARSCH, p. 6, Ent. Nachr. xviii, n. sp.
- Stenopyga*, n. g. (*Euchomena*, Gerst. nec Sauss.) for *S. extera*, n. sp., Cameroons, KARSCH, p. 146, Ent. Nachr. xviii.
- Tenodera limbicollis*, W. Africa, KARSCH, p. 7, Ent. Nachr. xviii, n. sp.
- Thrinaconyx*, n. g., *Thespiens*; SAUSSURE, p. 122, Soc. Ent. vii.

## PHASMATIDÆ.

- Leptynia kænigi*, Tunis, KRAUSS, p. 147, Wien. ent. Z. xi, n. sp.  
*Palophus*: monograph of; BRONGNIART, N. Arch. Mus. Paris (3) iii, pp. 193-204, pls. viii & ix.  
*Phanocles curvipes*, St. Vincent, REDTENBACHER, p. 207, pl. xv, fig. 9, P. Z. S. 1892, n. sp.

## GRYLLIDÆ.

- Apithes mcneilli*, Indiana, BLATCHLEY, p. 27, Canad. Ent. xxiv, n. sp.  
*Ectatoderus antillarum*, St. Vincent, REDTENBACHER, p. 218, pl. xvii, fig. 16, P. Z. S. 1892, n. sp.  
*Endacustes dispar*, St. Vincent, REDTENBACHER, p. 219, pl. xvii, fig. 18, P. Z. S. 1892, n. sp.  
*Gryllodes rufipes*, St. Vincent, REDTENBACHER, p. 217, pl. xvii, fig. 15, P. Z. S. 1892, n. sp.  
*Gryllotalpa vulgaris*, anatomy and histology of alimentary canal; EBERLI (244): phosphorescent; LUDWING, CB. Bakt. Parasit. ix, p. 561.  
*G. borealis*, notes on; FLETCHER, Canad. Ent. xxiv, p. 23, and DORAN, t. c. p. 147, life-history, *id.*, t. c., p. 270.  
*Gryllus guanchicus*, Tenerife, KRAUSS, p. 171, Zool. Anz. xv, n. sp.  
*Larandus marmoratus*, St. Vincent, REDTENBACHER, p. 218, pl. xvii, fig. 18, P. Z. S. 1892, n. sp.  
*Æcanthus niveus* and allies distinguished; HART, Ent. News. iii, pp. 33 & 34.  
*Phæophyllacris phalangium*, Cameroons, KARSCH, p. 78, Berl. Ent. Zeit. xxxvii, n. sp.

## LOCUSTIDÆ.

- Minute anatomy of tibial ears of *Locustidæ*; ADELUNG (3).  
 Monographic revision of *Mecopodides*; REDTENBACHER, pp. 183-224, pl. iii, Verh. z.-b. Wien, xlii.  
 Synopsis of generic characters of *Pseudophyllides*; PICTET & SAUSSURE, Icon. Saut. vertes.  
*Acanthoprion*, n. g., *Pseudophyllides*, p. 12, for *A. aztecum*, n. sp., Mexico, p. 26, pl. iii, fig. 21; PICTET & SAUSSURE, Icon. Saut. vertes.  
*Acilacris*: systematic position; KARSCH, p. 327, Berl. Ent. Zeit. xxxvi.  
*Alectoria superba*, Brun., = (*Hectoria pontoni*, Tep.); TEPPER, p. 87, Tr. R. Soc. S. Austr. xv.  
*Ametrosomus*, n. g. near *Ametrus*, p. 169, for *A. helmsi*, n. sp., Centr. Australia, p. 170; TEPPER, Tr. R. Soc. S. Austr. xv.  
*Amytta mutillata*, ♂ described; KARSCH, p. 328, Berl. Ent. Zeit. xxxvi.  
*Anepitacta*, systematic position; KARSCH, p. 327, Berl. Ent. Zeit. xxxvi.  
*Anoedopoda*, n. g., *Mecopodides*, p. 333, for *A. erosa*, n. sp., Cameroons, p. 334, KARSCH, Berl. Ent. Zeit. xxxvi; ♂ figured, *op. cit.* xxxvii, p. 77.

- Anonconotus*, Cam., = (*Analota*, Brun.) ; GRIFFINI, p. 2, Boll. Mus. Zool. Tor. vii, No. 125.
- Aprion oculatum*, Ceylon, *maculifolia*, Sumatra, pl. iii, fig. 19, PICTET & SAUSSURE, p. 21, Icon. Saut. vertes, n. spp.
- Apteronomus*, n. g. near *Apotrechus*, for *A. bordaensis*, n. sp., Kangaroo I.; TEPPER, p. 168, Tr. R. Soc. S. Austr. xv.
- Apteroscirtus*, n. g., *Mecopodides*, for *A. denudatus*, n. sp., Cameroons ; KARSCH, p. 330, Berl. Ent. Zeit. xxxvi.
- Ariagona*, n. g., *Decticine*, for *A. margarite*, n. sp., Tenerife ; KRAUSS, p. 170, Zool. Anz. xv.
- Arota rosaura*, noticed and figured ; KARSCH, p. 316, Berl. Ent. Zeit. xxxvi.
- Bliastes superbus*, p. 211, pl. xvi, fig. 12, *striolatus*, p. 212, fig. 13, St. Vincent, REDTENBACHER, P. Z. S. 1892, n. spp.
- Brochopeplus*, n. g., *Pseudophyllides*, p. 12, for *B. reticulatus*, n. sp., hab. ?, p. 25, pl. iii, fig. 20, PICTET & SAUSSURE, Icon. Saut. vertes.
- Cedicia longipennioides*, p. 89, *halmaturina*, p. 91, *hirsuta*, p. 93, *roseopennis*, p. 94, Australia, TEPPER, Tr. R. Soc. S. Austr. xv, n. spp.
- Calliphona*, n. g. near *Locusta*, p. 169, for *C. königi*, n. sp., Tenerife, p. 170 ; KRAUSS, Zool. Anz. xv.
- Characta*, n. g., *Mecopodides*, for *C. bituberculata*, n. sp., Borneo, pl. iii, fig. 9 ; REDTENBACHER, p. 207, Verh. z.-b. Wien, xlii.
- Chloracris*, n. g., p. 10, for *C. prasina*, India, pl. iii, fig. 14, *brullei*, Java, n. spp., p. 22 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Chlorotribonia*, n. g., *Pseudophyllides*, p. 7, for *C. acutipennis*, n. sp., Java, p. 16, pl. ii, fig. 9 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Clonia wahlbergi*, habits ; DISTANT, p. 83, Naturalist Transvaal.
- Condylodera tricondyloides*, Westw., = (*Trochalodera violascens*, Brunner) ; DOHRN, p. 64, S. E. Z. liii.
- Corycus intermedius*, W. Africa, REDTENBACHER, p. 221, pl. iii, fig. 12 Verh. z.-b. Wien, xlii, n. sp.
- Cyrtaspis scutata* and *variopicta*, characters and synonymy ; BOLIVAR, Rev. d'Ent. xi, pp. 289-293.
- Cyrtophyllus crepitans*, St. Vincent, REDTENBACHER, p. 213, pl. xvii, fig. 14, P. Z. S. 1892, n. sp.
- Dasyphleps*, n. g. for *Locusta novæ-guineæ* ; KARSCH, p. 343, Berl. Ent. Zeit. xxxvi.
- Diaphlebus*, n. g. for *D. brevimarginatus*, n. sp., Fiji Is. ; KARSCH, p. 343, Berl. Ent. Zeit. xxxvi.
- D. bivittatus*, p. 193, *marmoratus*, p. 194, pl. iii, fig. 2, REDTENBACHER, Verh. z.-b. Wien, xlii, n. spp.
- Dicranopsyra*, n. g., *Phanopterides*, for *D. multicolor*, n. sp., Borneo ; DOHRN, S. E. Z. liii, p. 71.
- Dictyota indivisa*, Adelaide, p. 98, *elderi*, W. Australia, p. 99, TEPPER, Tr. R. Soc. S. Austr. xv, n. spp.
- Elæoptera*, n. g., *Mecopodides*, p. 195, for *E. nitida*, *lineata*, pl. iii, fig. 3, n. spp., Fiji Is., p. 196 ; REDTENBACHER, Verh. z.-b. Wien, xlii.

- Encentra*, n. g., *Mecopodides*, for *E. longipes*, n. sp., Medellin, pl. iii, fig. 7, REDTENBACHER, p. 204, Verh. z.-b. Wien, xlii.
- Eonius*, n. g. near *Neanius*, for *E. tigrinus*, p. 163, *atrifrons*, p. 164, *fumatus*, p. 165, n. spp., S. Australia; TEPPER, Tr. R. Soc. S. Austr. xv.
- Ephippithyta quadrigesimaguttata*, S. Australia, TEPPER, p. 84, Tr. R. Soc. S. Austr. xv, n. sp.
- Ephippithytoidea*, n. g., *Phaneropterides*, for *E. sparsa*, n. sp., S. Australia; TEPPER, p. 85, Tr. R. Soc. S. Austr. xv.
- Eucorypha mutica*, Cameroons, KARSCH, p. 327, Berl. Ent. Zeit. xxxvi; *E. adicra*, Cameroons, KARSCH, p. 75, op. cit. xxxvii, n. spp.
- Eumegalodon*, n. n. for *Megalodon*, Brullé nec Sowerby, p. 277; the species described and figured, pp. 279-285, pl. xii; a new tribe, *Eumegalonidæ*, proposed, p. 285; BRONGNIART, N. Arch. Mus. Paris (3) iii.
- Goëtia*, n. g. (*Psyres*) for *G. galbana*, n. sp., Cameroons; KARSCH, pp. 322 & 323, Berl. Ent. Zeit. xxxvi.
- Gravenreuthia*, n. g., *Phaneropterides*, p. 73, for *G. saturata*, n. sp., Cameroons, p. 74; KARSCH, Berl. Ent. Zeit. xxxvii.
- Gryllacridæ* of Australia; TEPPER, pp. 139-170, Tr. R. Soc. S. Austr. xv.
- Gryllacris eximia*, p. 339, *genufusca*, p. 340, *nigriceps*, p. 341, Cameroons, KARSCH, Berl. Ent. Zeit. xxxvi; *G. atrogeniculata*, Centr. Australia, p. 144, *marmoriceps*, p. 145, *longicornis*, p. 146, *ferrotestacea*, p. 147, S. Australia, *lutescens*, Centr. Australia, p. 148, *subdebilis*, p. 151, *incerta*, p. 154, *paulula*, *molineusiana*, p. 155, S. Australia, TEPPER, Tr. R. Soc. S. Austr. xv : n. spp.
- Hemisaga*, note on the genus, with corrections of errors; SAUSSURE, pp. 12-14, Ann. Soc. Ent. Fr. lxi.
- H. prædatoria*, pp. 63 & 253, Transvaal, DISTANT, Naturalist Transvaal, n. sp.
- Ityocephala*, n. g., *Mecopodides*, p. 219, for *I. falcata*, n. sp., Fiji Is., pl. iii, fig. 11, p. 220; REDTENBACHER, Verh. z.-b. Wien, xlii.
- Leproscirtus*, n. g., *Mecopodides*, p. 328, for *Mecopoda granulosa*, Karsch; KARSCH, Berl. Ent. Zeit. xxxvi.
- Leptodera ornatipennis*, characters of; DOHRN, p. 66, S. E. Z. liii.
- Macroscirtus brevipennis*, Sierra Leone, REDTENBACHER, p. 218, Verh. z.-b. Wien, xlii, n. sp.
- Mataus casamançæ*, Guinea, PICTET & SAUSSURE, p. 23, pl. iii, fig. 13, Icon. Saut. vertes, n. sp.
- Mecopodides*: tabulation of certain genera of; KARSCH, Berl. Ent. Zeit. xxxvi, pp. 341-346.
- Mecopoda dilatata*, Borneo, p. 213, *divergens*, hab. ?, REDTENBACHER, p. 213, Verh. z.-b. Wien, xlii, n. spp.
- Microprion*, n. g., *Pseudophyllides*, p. 17, for *M. philippinensis*, Philippines, *elliptifolia*, Java, pl. ii, fig. 11, p. 18; PICTET & SAUSSURE, Icon. Saut. vertes.

- Microsaga*, Sauss., referred to *Conocephaliens*; SAUSSURE, p. 15, Ann. Soc. Ent. Fr. lxi.
- Mioacris*, n. g., *Pseudophyllides*, p. 7, for *M. javana*, n. sp., Java, p. 16 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Miosaga*, n. g., *Sagiens*, p. 10, for *M. orthoxipha*, n. sp., New Holland, p. 11 ; SAUSSURE, Ann. Soc. Ent. Fr. lxi.
- Mirollia carinata*, ♂ characters ; DOHRN, p. 66, S. E. Z. liii.
- Onomarcus latipennis*, p. 15, *mandarinus*, p. 16, China, PICTET & SAUSSURE, Icon. Saut. vertes, pl. i, figg. 6 & 7, n. spp.
- Orchelimum gracilis* is not *Xiphidium fasciatum* ; BRUNER, p. 264, Ent. News, iii.
- Orophila*, n. g. (isolated), p. 168, for *O. nubigena*, n. sp., Tenerife, p. 169 ; KRAUSS, Zool. Anz. xv.
- Pachypodagrus*, n. g., *Stenopelmatidæ*, p. 176, for *P. magareyi*, *crassipes*, n. spp., S. Australia, p. 177 ; TEPPER, Tr. R. Soc. S. Austr. xv.
- Paragryllacris pallidolinea*, p. 159, *insignis*, p. 161, *deserta*, p. 162, S. Australia, TEPPER, Tr. R. Soc. S. Austr. xv, n. spp.
- Penthoplophora*, n. g., *Stenopelmatidæ*, p. 175, for *S. driffiardi*, n. sp., Australia ; TEPPER, p. 176, Tr. R. Soc. S. Austr. xv.
- Phaneropteridæ* of Australia ; TEPPER, pp. 77-113, Tr. R. Soc. S. Austr. xv.
- Phaula trichopus*, Deh., = (*chlorotica*, Brunner) ; DOHRN, p. 69, S. E. Z. liii.
- Phlaurocentrum mecopodoides*, Cameroons, KARSCH, p. 321, Berl. Ent. Zeit. xxxvi, n. sp.
- Phricta*, n. g., p. 191 (*Mecopodides*), for *P. spinosa*, n. sp., Queensland, p. 192, pl. iii, fig. 1 ; REDTENBACHER, Verh. z.-b. Wien, xlii.
- Phyllomimus truncatifolia*, Moluccas, PICTET & SAUSSURE, p. 19, pl. ii, fig. 10, Icon. Saut. vertes, n. sp.
- Phyllotribonia*, n. g., *Pseudophyllides*, p. 10, for *P. verruculosa*, n. sp., Centr. Africa, p. 23, pl. iii, fig. 17 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Phyllozelus*, n. g. for *P. genicularis*, n. sp., hab. ?, pl. iii, fig. 16, PICTET & SAUSSURE, p. 24, Icon. Saut. vertes.
- Plangiopsis foraminata*, Cameroons, KARSCH, p. 324, Berl. Ent. Zeit. xxxvi, n. sp.
- Platygleis azami*, S. France, FINOT, Bull. Soc. Ent. Fr. lxi, p. xxxv, n. sp.
- Pæcilopsyra*, n. g. for *Phaneroptera octoseriata*, Deh. ; DOHRN, p. 69, S. E. Z. liii.
- Polichne ferruginea*, S. Australia, TEPPER, p. 100, Tr. R. Soc. S. Austr. xv, n. sp.
- Preussia lobatipes*, ♂ described ; KARSCH, p. 326, Berl. Ent. Zeit. xxxvi.
- Pyrrophyllax emarginatus*, Borneo, DOHRN, p. 68, S. E. Z. liii, n. sp.
- Rhammatopoda*, n. g., *Mecopodides*, for *R. opilionoides*, n. sp., Peru, pl. iii, fig. 6 ; REDTENBACHER, p. 203, Verh. z.-b. Wien, xlii.
- Sagiens* : synopsis of genera ; SAUSSURE, pp. 5-16, Ann. Soc. Ent. Fr. lxi.

- Scutotribonia*, n. g., *Pseudophyllides*, p. 11, for *S. humbertiana*, n. sp., Ceylon, pl. iii, fig. 18, p. 24 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Segestes punctipes, fuscus*, Philippines, *unicolor*, Pelew Is., p. 199, *decoratus*, New Guinea, p. 200, pl. iii, fig. 4, REDTENBACHER, Verh. z.-b. Wien, xlii, n. spp.
- Stenopelmatide*, synopsis of Australian and Polynesian ; TEPPER, pp 170-178, Tr. R. Soc. S. Austr. xv.
- Sthenaropoda*, n. g., *Mecopodides*, p. 331, for *S. preussiana*, n. sp., Cameroons, p. 332 ; KARSCH, Berl. Ent. Zeit. xxxvi.
- Sympæstria longipes*, Java, DOHRN, S. E. Z. liii, p. 73, n. sp.
- Teniomena sororoides*, p. 106, S. Australia, *fraserensis*, W. Australia, p. 108, *minor*, S. Australia, p. 109, TEPPER, Tr. R. Soc. S. Austr. xv, n. spp.
- Terpandrus horridus*, redescription and synonymy ; SAUSSURE, Ann. Soc. Ent. Fr. lxi, pp. 7 & 8.
- Trachyzulpha*, n. g. near *Zulpha*, p. 67, for *T. fruhstorferi*, n. sp., Java, p. 68 ; DOHRN, S. E. Z. liii.
- Tympanoptera*, n. g., p. 19, for *T. grioleti*, Moluccas, pl. iii, fig. 15, *oceanica*, Fiji Is., pl. ii, fig. 12, p. 20 ; PICTET & SAUSSURE, Icon. Saut. vertes.
- Xiphidium scudderi*, Indiana, BLATCHLEY, Canad. Ent. xxiv, p. 26, n. sp.

## ACRIDIIDÆ.

- Acridiûd* ovipositing in *Rubus* stems ; VERHOEFF, p. 298, Ent. Nach. xviii.
- Arminda*, n. g. near *Platyphyma*, for *A. brunneri*, n. sp., Tenerife ; KRAUSS, p. 168, Zool. Anz. xv.
- Caletes*, n. g., p. 209, for *C. apterus*, n. sp., St. Vincent, p. 210, pl. xvi, fig. 11 ; REDTENBACHER, P. Z. S. 1892.
- Caloptenus vulcanius*, Canary Is., KRAUSS, p. 167, Zool. Anz. xv, n. sp.
- Chrotogonus meridionalis*, Transvaal, SAUSSURE, p. 262, pl. iv, fig. 5, in Distant, Naturalist Transvaal, n. sp.
- Eremobia claveli*, n. var., *læviuscula* ; KRAUSS, p. 149, Wien. ent. Z. xi.
- Gemeneta*, n. g., *Acridiides*, p. 71, for *G. terrea*, n. sp., Cameroons, p. 72 ; KARSCH, Berl. Ent. Zeit. xxxvii.
- Hippiscus pantherinus*, p. 285, *haldemani*, p. 286, *compactus*, p. 288, *variegatus, suturalis*, p. 301, *H. (Sticthippus) californicus*, p. 317, *marmoratus*, p. 318, *H. (xanthippus) conspicuus*, p. 319, *eremitus*, p. 320, *maculatus*, p. 333, *tigrinus*, p. 334, *affrictus*, p. 336, *altivolus*, p. 347, *cupidus*, p. 348, *pumilus*, p. 349, *albulus*, p. 350, *latefasciatus, obscurus*, p. 359, *griseus, aurilegulus*, p. 362, *stigmatosus*, p. 363, N. America, SCUDDER, Psyche, vi, n. spp.
- Melanoplus griseus*, ♂ described ; BLATCHLEY, p. 30, Canad. Ent. xxiv.
- Leptysma marginicollis*, habits ; BLATCHLEY, p. 28, Canad. Ent. xxiv.
- Ælipoda canariensis*, Tenerife, KRAUSS, p. 167, Zool. Anz. xv, n. sp.
- Pamphagus foreli*, ♀ described ; KRAUSS, p. 149, Wien. ent. Z. xi.

- Petasia spumans*, var. *ater* ; DISTANT, p. 259, pl. iv, fig. 3, Naturalist Transvaal.
- Pezotettix hoosieri*, Indiana ; BLATCHLEY, p. 31, Canad. Ent. xxiv, n. sp.
- Pygostolus inuncatus*, Cameroons, KARSCH, p. 72, Berl. Ent. Zeit. xxxvii, n. sp.
- Schistocerca peregrina* : Criquet pelerin, Sauterelle de la Bible : oviposition, KÜNCKEL, C.R. Ass. Fr. Sci. xx, pt. 1, p. 241, and pt. 2, p. 554 ; correction as to egg-cases, LUCAS, p. lxxxi, Bull. Soc. Ent. Fr. lxi ; note on the changes of colour that accompany its moults, KÜNCKEL, p. xxv, Bull. Soc. Ent. Fr. lxi, and BRONGNIART, t. c. p. lix ; *S. americana*, the migratory locust of Chili, BOLIVAR, Act. Soc. Chili, ii, pp. 196-199 : but it is not this species, LATASTE, t. c. pp. 200-209.
- Stauronotus maroccanus*, structure of Ootheca ; TARRAL, Bull. Soc. Béziers, xii, p. 10.
- Stenobothrus simonyi*, Canary Is., KRAUSS, p. 166, Zool. Anz. xv, n. sp.
- Stict hippus*, n. subg. of *Hippiscus*, SCUDDER, Psyche, vi, p. 317.
- Tettix quadriundulatus*, St. Vincent, REDTENBACHER, p. 208, pl. xvi, fig. 10, P. Z. S. 1892, n. sp.
- Thalpomena picteti*, Tenerife, KRAUSS, p. 167, Zool. Anz. xv, n. sp.
- Xiphocera distantii*, pl. iv, fig. 1, *picta*, fig. 2, SAUSSURE, p. 261, in Distant, Naturalist Transvaal, n. spp.

## XIV. ECHINODERMATA.\*

BY

F. A. BATHER.

---

### I.—TITLES.

BARTHELS, P. [See LUDWIG & BARTHELS (32).]

1. BATHER, F. A. Suggested Terms in Crinoid Morphology. Ann. N. H. (6) ix, pp. 51-66. [*Crin.*]
  2. —. British Fossil Crinoids. VI. *Botryocrinus quinquelobus*, n. sp., Wenlock Limestone; and note on *B. pinnulatus*. T. c. pp. 189-194, pl. xi. [*Crin.*]
  3. —. British Fossil Crinoids. VII. *Mastigocrinus loreus*, n. g. & sp., Wenlock Limestone, Dudley. T. c. pp. 194-202, pls. xi & xii. [*Crin.*]
  4. —. British Fossil Crinoids. VIII. *Cyathocrinus*: *C. acinotubus*, Ang., and *C. vallatus*, n. sp., Wenlock Limestone. T. c. pp. 202-226, pl. xiii. [*Crin.*]
  5. —. The Fossil *Crinoidea* in the British Museum. (An attempt to put into practice modern ideas of Museum arrangement.) Ann. Rep. Museums' Assoc. for 1891, pp. 78-110. [*Crin.*]
- [See also BLAKE (13), NOETLING (38), WOODS (55).]

---

\* While Mr. Bather's Record was still incomplete he was compelled to take a voyage, of some months duration, for the benefit of his sight. He has not returned in time to finish his work, the completion of which must therefore be given in the next volume of our RECORD, in combination with the literature of 1893.—  
EDITOR Z. R.

6. BEACHLER, C. S. Rocks of the Niagara age in Indiana. *Am. Geol.* ix, pp. 408 & 409. [*Crin.*]
7. —. Keokuk Group of the Mississippi Valley. *Op. cit.* x, pp. 88–96. [*Crin.*]
8. BELL, F. J. On the Echinoderms collected by the Ss. "Fingal" in 1890, and by the Ss. "Harlequin" in 1891, off the West Coast of Ireland. *Sci. P. R. Dubl. Soc. (n.s.)* vii, pp. 520–529, pls. xxiii–xxv. [*Hol., Crin., Ast., Oph., Ech.*]
9. —. A contribution to the classification of *Ophiuroids*, with descriptions of some new and little-known forms. *P. Z. S.* 1892, pp. 175–183, pls. xi & xii. [*Oph.*]
10. —. Description of a new species of *Antedon* from Mauritius. *Ann. N. H.* (6) ix, pp. 427 & 428, pl. xviii. [*Crin.*]
11. BIGOT, A. [Remarks on *Cidaris cenomanensis*, Cott.] *Bull. Soc. L. Norm.* (4) v, pp. 54 & 55. [*Ech.*]
12. BIZET, P. Considérations Géologiques and Paléontologiques sur les terrains des Environs de Bellême et de Mamers. *Bull. Soc. Géol. Norm.* xiii, pp. 95–132 (Havre, 1890). [*Ech.*]  
Distribution of Echinoids in Jurassic.
13. BLAKE, J. F. *Annals of British Geology*, 1891, pp. 224–231. [Gives abstracts of the following papers in Record for 1891: GREGORY (3) and (8), ROBERTS, SLADEN (2), CARPENTER (1), BATHER (1) and (2).]
14. BOEHM, G. Ueber eine Anomalie im Kelche von *Millericrinus mespiliformis*. *Z. geol. Ges.* xliii, pp. 741–743. [*Crin.*]  
CARPENTER, P. H. [See under BLAKE, J. F. (13).]
15. COLE, A. H. *Palaeaster eucharis*, Hall. *Bull. Geol. Soc. Am.* iii, pp. 512–514, pl. xv. [*Ast.*]
16. CUNNINGHAM, J. T. The Preservation of Marine Animals for Zoological purposes. *Ess. Nat.* vi, p. 124.
17. DARTON, N. H. Fossils in the "Archæan" rocks of Central Piedmont, Virginia. *Am. J. Sci.* xliv, pp. 50–52. [*Crin.*]
18. DYCHE, D. T. D. [Termination of the column of certain Crinoids.] *Am. Geol.* x, p. 130. [*Crin.*]
19. ECK, H. Abnormer Kelchbau bei *Encrinus gracilis*. *Z. geol. Ges.* xliv, pp. 138 & 139. [*Crin.*]
20. ETHERIDGE, R. (FIL.). A Monograph of the Carboniferous and Permo-Carboniferous Invertebrata of New South Wales. Part II. *Echinodermata, Annelida, and Crustacea*. *Mem. Geol. Surv. N.S.W.* Palæont, No. 5, pp. i–x, & 65–133, pls. xii–xxii. [*Ech., Ast., Crin., Blast.*]

FABER, C. [See MILLER & FABER (34).]

21. FIELD, G. W. The Larva of *Asterias vulgaris*. Q. J. Micr. Sci. (n.s.) xxxiv, pp. 105-128, pls. xiii-xv. [*Ast.* and General.]
22. GREGORY, J. W. The Relations of the American and European Echinoid Faunas. Bull. Geol. Soc. Am. iii, pp. 101-108. [*Ech.*]
23. —. *Archæopneustes abruptus*, a new genus and species of Echinoid from the Oceanic Series in Barbados. Q. J. Geol. Soc. xlviii, pp. 163-169. [*Ech.*]
24. —. Further additions to Australian Fossil *Echinoidea*. Geol. Mag. (n.s.), (iii), ix, pp. 433-437, pl. xii. [*Ech.*]  
 —. [See also BLAKE, J. F. (13), & WOODS (55).]  
 GUETTARD, J. E. [See LETACQ (29).]  
 HARRISON, J. B. [See JUKES-BROWNE & HARRISON (26).]
25. HARTLAUB, C. Ueber die Arten und den Skelettbau von *Culcita*. Notes Leyd. Mus. xiv, pp. 65-118, pls. i & ii. [*Ast.*]
26. JUKES-BROWNE, A. J., & HARRISON, J. B. The Geology of Barbados. Part II. The Oceanic Deposits. Q. J. Geol. Soc. xlviii, pp. 170-226. [*Ech.*]
27. KEYES, C. R. The Principal Mississippian Section. Bull. Geol. Soc. Am. iii, pp. 283-300, pl. ix. [*Crin.*]  
 KOKEN, E. [See WÖHRMANN & KOKEN (54).]
28. LENT, C. Die Fauna der Renggerithone von Kandern. MT. badischen Geol. Landesanst. ii, Heft 3, pp. 623-639. [*Crin.*, *Ast.*]
29. LETACQ, A. L. Notice sur les Travaux Scientifiques de Guettard aux environs d'Alençon et de Laigle (Orne). Bull. Soc. L. Norm. (4) v, pp. 67-85. [*Crin.*]  
 On p. 75 is a note "Sur les Encrines et les Pierres étoilées recueillies à Alençon," described by J. E. Guettard.
30. LOVEN, S. Echinologica. Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 1-74, pls. i-xii. [*Ech.*]
31. LUDWIG, H. Ueber die Rädchen der *Synaptiden*. Z. wiss. Zool. liv, pp. 350-364. [*Hol.*]
32. LUDWIG, H., & BARTHELS, P. Beiträge zur Anatomie des Holothurien. T. c. pp. 631-654, pl. xxviii. [*Hol.*]
33. MACBRIDE, E. W. The Development of the Genital Organs, Ovoid Gland, Axial and Aboral Sinuses in *Amphiura squamata*; together with some remarks on Ludwig's Hæmal System in this Ophiurid. Q. J. Micr. Sci. (n.s.) xxxiv, pp. 129-153, pls. xvi-xviii. [*Oph.*]

34. MILLER, S. A., & FABER, C. Some new Species and new Structural parts of Fossils. J. Cincinn. Soc. xv, pp. 79-81, pl. i. [*Cyst.*] Critical note in Am. Geol. x, pp. 316 & 317, Nov.
35. MILLS, J. E. Stratigraphy and Succession of the Rocks of the Sierra Nevada of California. Bull. Geol. Soc. Am. iii, pp. 413-444, pl. xiii. [*Crin.*, stems in Lower Mesozoic.]
36. MINCHIN, E. A. Notes on the Cuvierian Organs of *Holothuria nigra*. Ann. N. H. (6) x, pp. 273-284, pl. xvii. [*Hol.*]  
 NEWTON, E. T. [See SHARMAN & NEWTON (46).]
37. NICKLÈS, R. Recherches Géologiques sur les Terrains Secondaires et Tertiaires de la Province d'Alicante et du Sud de la Province de Valence. Ann. Hébert, i, pp. 1-219, pls. i-x.  
 Pp. 202-204, and pls. viii & ix (parts) refer to Echinoderms.
38. NOETLING, F. Field Notes from the Shan Hills. [See Record for 1891.] Critical note by F. A. B.; Geol. Mag. (n.s.) ix, p. 521. [*Cyst.*]
39. EHLERT, D. P. Description de deux Crinoïdes nouveaux du Dévonien de la Manche. Bull. Soc. Géol. (3) xix, pp. 834-853, pl. xviii. [*Crin.*]
40. RAMSAY, E. P. Catalogue of *Echinodermata* in the Australian Museum. Part I. 2nd Ed. Sydney: 1891, 8vo, vii & 60 pp., 4 pls.
41. REED, F. R. C. Woodwardian Museum Notes. Geol. Mag. (n.s.), (iii), ix, pp. 548 & 549. [*Crin.*]
42. RIGAUX, E. Notice géologique sur le Bas Boulonnais. Mém. Soc. Acad. Boulogne, xiv, p. 108, pls. i & ii. [*Ech.*, *Ast.*, *Oph.*, *Crin.*, localities and horizons; especially Jurassic.]  
 ROBERTS, T. [See BLAKE, J. F. (13).]
43. ROTHPLETZ, A. Die Perm-, Trias-, und Jura-Formation auf Timor und Rotti im indischen Archipel. Palæontogr. xxxix, pp. 57-106, pls. ix-xiv. [*Crin.*, *Ech.*]
44. SEELIGER, O. Die Embryonal-entwicklung der *Comatula* (*Antedon rosacea*). Zool. Anz. xv, pp. 391-393. [*Crin.*]
45. —. The Embryonic Development of *Comatula* (*Antedon rosacea*). Ann. N. H. (6) x, pp. 481-483, Dec. [*Crin.*]  
 A translation of the preceding.
46. SHARMAN, G., & NEWTON, E. T. On a New Form of Agelacrinites (*Lepidodiscus milleri*, n. sp.) from the Lower Carboniferous Limestone of Cumberland. Q. J. Geol. Soc. xlviii, pp. 150-152, pl. ii. [*Cyst.*]  
 SLADEN, W. P. [See BLAKE, J. F. (13).]

- SPRINGER, F. [See WACHSMUTH & SPRINGER (50).]
47. STOLLEY, E. Die Kreide Schleswig-Holsteins. MT. Min. Inst. Kiel, i, pp. 191-309, pls. vii-x. [*Ech.*, *Crin.*]
  48. ULRICH, A. Palæozoische Versteinerungen aus Bolivien. Beitr. z. Geol. u. Paleont. v. Südamerika, i, pp. 5-116, pls. i-v. Stuttgart. [*Crin.*, columnals only.]
  49. WACHSMUTH, C. [A Letter on *Pentacrinus* stems in Jurassic (?) Limestones of California ; see MILLS, J. E. (35), p. 428.]
  50. WACHSMUTH, C., & SPRINGER, F. Description of Two new Genera and Eight Species of Camerate Crinoids from the Niagara Group. Am. Geol. x, pp. 135-144. [*Crin.*]
  51. WAGNER, R. Ueber einige Versteinerungen des unteren Muschelkalks von Jena. Z. geol. Ges. xliii, pp. 879-901, pl. xlix. [*Crin.*]
  52. WHITEAVES, J. F. The Fossils of the Devonian Rocks of the islands, shores, or immediate vicinity of Lakes Manitoba and Winnipeg. Geol. Surv. Canada. Contrib. to Canadian Palæont. i, pt. iv, pp. 255-359, pls. xxxiii-xlvi. [Advance sheets to p. 318 and pl. xi, Sept. ; the rest Dec.] [*Crin.*, p. 276, fragments of *Ctenocrinus* sp.]
  53. WILLIAMSON, W. C. Exhibit and Remarks on *Astropecten orion*, Kellaways Rock, Pickering, Yorkshire. P. Geol. Soc. 1892, pp. 184 & 185. [*Ast.*]
  54. WOHRMANN, S. VON, & KOKEN, E. Die Fauna der Raibler Schichten vom Schlerenplateau. Z. geol. Ges. xlv, pp. 167-223, pls. vi-xvi. [*Crin.*, p. 170, columnals of *Encrinus cassianus*.]
  55. WOODS, H. Catalogue of the Type Fossils in the Woodwardian Museum, Cambridge. With preface by T. McK. HUGHES. Cambridge : 1891 (publ. Jan., 1892), 8vo, xvi & 180 pp. [*Ech.*, pp. xvi & 30-34 ; *Ast.*, pp. 35 & 36, revised by J. W. Gregory ; *Oph.*, pp. 36 & 37 ; *Crin.*, pp. xvi & 37-42 ; *Cyst.*, pp. 42 & 43, revised by F. A. Bather ; *Blast.*, pp. 43 & 44 ; *Hol.*, p. xvi.]

## II.—BIOLOGY.

### (a.) ANATOMY.

*Echinodermata* : general account ; BATHER, (5) p. 84.

*Holothurioidea* : Cuvierian organs of *Holothuria* and *Muelleria* ; LUDWIG & BARTHELS (32) : of *Holothuria nigra* ; MINCHIN (36).—The wheel-spicules ("Rädchen") of *Synaptidæ* ; LUDWIG (31).

*Echinoidea* : Interambulacra of *Archæocidaris selwyni*, and possible new genus ; ETHERIDGE (20).—The buccal membrane, its origin and history ; the auricles, their structure and development, pp. 36 *et seq.* ; the dental apparatus, its structure and development, pp. 40 *et seq.* ; Muscles of dental

apparatus, p. 42 ; LOVEN (30).—Corona of the *Cidaride* ; LOVEN (30) p. 18.

*Asteroidea* : General structure and homologies of skeleton in *Culcita* ; HARTLAUB, (25) p. 99.—Ambulacra of *Palæaster*, new subgenus *Monaster* ; ETHERIDGE (20).—Detailed description of oral surface of *Palæaster eucharis* ; COLE (15).

*Ophiuroidea* : Large calycinal plates of young *Pectinura*, described and figured, p. 176 ; arm-ossicles of *Ophioterresis elegans*, and of Ophiuroids generally as basis of classification, pp. 176–178 ; radial shields of *Ophiomaza obscura*, p. 182 ; BELL (9).—Ovoid gland, p. 134 ; Hæmal system, p. 140 ; genital organs (p. 142) of *Amphiura squamata* ; MACBRIDE, (33).

*Crinoidea* : New terms suggested : “Super-radials” and “Infer-radials” for halves of transversely bisected radials ; “Primibrachs, Secundibrachs, &c.,” for series of non-pinnulate arm-ossicles, or brachials ; “Monostichals, Distichals, Tetrastichals, &c.,” for the same when pinnulate ; corresponding names for intercalated and interrarial plates, by prefix “Inter” ; “Deltoids,” for certain tegmental plates ; “Cirrals,” “Radicals,” and “Imperforate articulation” ; BATHER (1).—Arms of *Tribrachioerinus* ; ETHERIDGE, (20) p. 87.—Axial folds of cup-plates as connected with dorsal nervous system, p. 840 ; radiate ridging of cup-plates distinguished from axial folds (*q.v.*), p. 841 ; interrarial plates of cup, their morphological importance, p. 842 ; arms, their palæontological development, p. 846 ; stem of *Diamenocrinus* compared with that of *Herpetocrinus* and others, p. 848 ; stem angles and cirri, Wachsmuth’s Law of Orientation discussed, p. 849 ; base, dicyclic and monocyclic types, p. 852 ; OEHLERT (39).—Tegmen of *Encrinus wagneri* carefully described and compared with those of recent forms, p. 879 ; regeneration of arms in *Encrinus wagneri*, p. 887 ; arms of *Encrinus aculeatus*, p. 890 ; WAGNER (51).—Tegmen, orals of *Idiocrinus ventricosus* ; WACHSMUTH & SPRINGER, (50) p. 138.—Structure of dorsal cup in *Hypocrinus* ; ROTHPLETZ, (43) p. 75.—Roots of *Glyptocrinus* and *Heterocrinus* ; DYCHE (18).—Arms of *Cyathocrinus*, the branching (p. 218), the axial canal (p. 223), the covering-plates (p. 224) ; anal tube of *Cyathocrinus*, p. 224 ; tegmen of *Cyathocrinus*, p. 225 ; BATHER (4).—Anal tube, detailed description of structure in *Mastigocrinus*, p. 198 ; stem, alternate arrangement of pentameres in *Mastigocrinus*, p. 200 ; BATHER (3).—Arms, peculiarities of branching, p. 193 ; anal tube, articulation of plates, p. 194, and (3) p. 199 ; BATHER (2).—Abnormal structure of dorsal cup in *Millerocrinus mespiliformis* ; BOEHM (14).—Abnormal structure of dorsal cup in *Encrinus gracilis* ; ECK (19).—Abnormal dorsal cup, 4-rayed, *Platycrinus pileatus* ; REED (41).—Abnormal structure of dorsal cup in *Hypocrinus pyriformis* ; ROTHPLETZ, (43) p. 75.—Nervous system, dorsal ; OEHLERT, (39) p. 840.

*Cystidea* : Under-side and internal framework of *Agelacrinus pileus* ? ; MILLER & FABER, (34) p. 85.

## (b.) PHYSIOLOGY.

Water-pore and madreporic plate, their functions; FIELD, (21) p. 120.—Enlarged *Crinoid* stems; ETHERIDGE, (20) p. 117.—Ejection of Cuvierian organs in *Holothuria*; MINCHIN (36).

## (c.) GENERAL.

Relation of Crinoid faunas to environment in N. American Palæozoic rocks; KEYES, (27) pp. 291–293.

Variation in species-characters, colour, calcification, &c.; BELL, (8) pp. 520, 521, 523, 527, & 528.

Echinoderm larva, ancestral or cœnogenetic?; FIELD, (21) p. 118.

Ancestral Echinoderm; FIELD, (21) p. 121.

Radial symmetry secondarily acquired; FIELD, (21) p. 121.

Phylogeny of *Synaptidæ*, based on wheel-spicules; LUDWIG, (31) p. 363.

## (d.) DEVELOPMENT.

General Echinoderm embryology: Gonads derived from peritoneal cells, as in other *Calomata*; MACBRIDE, (33) p. 149.

Corona of *Cidaridæ* and of *Echinoidea Ectobranchiata*, its gradual growth; descriptions of the young of *Abatus*, *Goniocidaris*, *Echinus*, *Strongylocentrotus*; provisional sucking-feet in larval *Echinoids*, pp. 4, 5, & 12; intestine of larval *Echinoids*, pp. 4 & 7; skeleton system of larval *Echinoids*; LOVEN (30).

*Asterias vulgaris*: Oogenesis, p. 106; spermatogenesis, p. 107; cleavage of ovum, p. 107; mesenchyme formation, pp. 108 & 116; bipinnaria of, p. 108; enterocœl formation, pp. 109 & 115; waterpores in larva of, p. 110; ciliated bands in larva of, p. 112; FIELD (21).

Embryonic development of genital organs, ovoid gland, axial and aboral sinuses in *Amphiura squamata*; MACBRIDE (33).

Growth of *Cyathocrinus*; BATHER, (4) p. 223.

Early stages of *Antedon*; abnormal bigastric embryo of *Antedon*; development of nervous system in *Antedon*; SEELIGER (44).

## III.—DISTRIBUTION.

## A.—GEOGRAPHICAL.

British area, W. Coast of Ireland: *Synapta*, *Psolus*, *Thyone*, *Holothuria*, *Antedon*, *Astropecten*, *Psilaster*, *Luidia*, *Porania*, *Asterina*, *Cribrella*, *Stichaster*, *Asterias*, *Ophiura*, *Amphiura*, *Ophiocoma*, *Ophiothrix*, *Ophiobyrsa*, *Cidaris*, *Phormosoma*, *Asthenosoma*, *Echinus*, *Spatangus*; BELL (8).

British area, S. W. Ireland: *Ophiobyrsa hystricis*; BELL (9).

Distribution of European and American Echinoid faunas ; GREGORY (22).

Indian Ocean and Archipelago : species of *Culcita* ; HARTLAUB, (25) p. 75.—Indian Ocean, Seychelles : *Ophioteris elegans* ; BELL (9).—Mauritius : *Antedon emendatrix* ; BELL (10).

N. W. Australia, Bassett-Smith bank : *Ophiomaza obscura* ; BELL (9).

Pacific Ocean : species of *Culcita* ; HARTLAUB, (25) p. 75.

General distribution of the genus *Culcita* ; HARTLAUB, (25) p. 75.

## B.—GEOLOGICAL.

Tertiary : of Australia, *Laganum decagonale*, *Schizaster*, *Macropneustes decipiens* ; GREGORY (24).

Pliocene : Echinoid faunas of Europe and America ; GREGORY, (22) p. 107.—Pliocene ? : Barbados, *Cystechinus crassus* ; JUKES-BROWNE & HARRISON, (26) p. 194.—Tertiary (Miocene or Pliocene), top of Oceanic series, Barbados, *Archæopneustes abruptus* ; GREGORY, (23).

Miocene : Echinoid faunas of Europe and America ; GREGORY, (22) p. 105.

Oligocene : Echinoid faunas of Europe and America ; GREGORY, (22) p. 104.

Eocene : Echinoid faunas of Europe and America ; GREGORY, (22) p. 104.—Mid. Eocene, Spain : *Arachnopleurus reticulatus*, D. & SL. ; NICKLES (37).—Mid. Murravian, Australia, *Cassidulus florescens* and other Echinoids ; GREGORY (24).

Cretaceous : Echinoid faunas of Europe and America ; GREGORY, (22) p. 103.—Maëstrichian of Almaceres : *Isopneustes heberti*, n. sp. ; NICKLES (37).—(Senonian) Schleswig Holstein : *Micraster glyphus*, *M. haasi*, *M. gottschei*, *M. schræderi*, *M. gibbus*, *Echinocorys vulgaris*, *Offaster pilula*, *O. corculum*, *Cardiaster lehmanni*, *Stegaster facki*, *Echinoconus vulgaris*, *Pentacrinus carinatus*, *P. bicoronatus*, *Austinocrinus zitteli*, *A. rothpletzi*, *A. meyni*, *Bourgueticrinus*, *Antedon* ; doubtful, *Asteroidea* ; STOLLEY (41).—(Cenomanien), Rouen : *Cidaritis cenomanensis* ; BIGOT (11).

Jurassic :—(Kellaways Rock), Yorkshire, *Astropecten orion* ; WILLIAMSON (53).—Normandy : distribution of Echinoids ; BIZET (12).—(Rengerithone), Baden : *Balanocrinus pentagonalis* and *Goniaster impressus* ; LENT (28).—(Oberer weisser Jura), Sontheim a. d. Brenz, *Millericrinus mespiliformis* ; BOEHM (14).—(Bathonian) p. 42, (Oxfordian) p. 51, (Corallian) p. 59, various Echinoids and Crinoids ; (Astartian and Kimmeridgian), Echinoids, Asteroids, Crinoids, and an *Ophiurella*, pp. 63–81 ; (Portlandian), various Echinoids, p. 85 ; (Bas-Boulonnais) : RIGAUX (42).—Sierra Nevada, California : *Pentacrinus* stems ; MILLS, (35) p. 428.

Trias : (Lower Muschelkalk), Jena, *Encrinurus wagneri* and *E. aculeatus* ; WAGNER (51).—(Chorzower Beds), Gogolin, Upper Silesia, *E. gracilis* ; ECK (19).—(Dolomite, above Raibler Beds), Schlern, *E. cassianus* ; WOEHRMANN & KOKEN (54).

Permian-Jurassic : Echinoid faunas of Europe and America ; GREGORY, (22) p. 103.

Permian : Timor, *Hypocrinus mulleri*, H. (?) *pyriformis* ; Timor and Rotti, columnals of *Platycrinidae* and other *Crinoids* ; Echinoid spine ; ROTHPLETZ (43).

Carboniferous : Echinoid faunas of Europe and America ; GREGORY, (22) p. 102.

Permo-Carboniferous : Australia, N.S.W., *Archæocidaris*, *Palæaster*, *Poteriocrinus*, *Tribrachiocrinus*, *Phialocrinus* ; ETHERIDGE (20).

Carboniferous : Australia, N.S.W., *Actinocrinus*, *Periechocrinus*, *Platycrinus*, *Symbathocrinus* ; ETHERIDGE (20).—(Osage Limestone), Mississippi Basin : change in Crinoid faunas ; KEYES, (27) p. 291.—(Keokuk), Mississippi Valley : numerous *Crinoids* recorded, with remarks on their palæontological development ; BEACHLER, (7) pp. 94–96.—(Lower), Cumberland and Northumberland : *Lepidodiscus milleri* ; SHARMAN & NEWTON (46).

Devonian : (*Stringocephalus* beds), Manitoba, *Ctenocrinus* ; WHITEAVES (52).—(Hamilton Shales), Hamilton, N.Y. : *Palæaster eucharis* ; COLE (15).—Lower Dev. la Manche, France : *Ctenocrinus* and *Diamenocrinus* ; OEHLERT (39).—Bolivia : undeterminable fragments of *Crinoids* ; ULRICH, (48) p. 83.

Ordovician : Burmah : *Echinosphaera* ; NOETLING (38).—Central Piedmont, Virginia : Crinoid remains apparently of Trenton age, and supposed to be allied to *Schizocrinus*, *Heterocrinus*, and *Poteriocrinus* ; DARTON. —(Hudson R. gr.), Cincinnati : *Cyclocystoides* and *Agelacrinus* ; MILLER & FABER (34).

Silurian : (Niagara), Indiana : *Holocystites affinis* ; MILLER & FABER (34).—Indiana : *Idiocrinus elongatus*, *I. ventricosus*, *Hyptiocrinus typus*, *Callicrinus beachleri*, *Melocrinus oblongus*, *M. parvus* ; Tennessee, *Eucalyptocrinus lindahli*, *Melocrinus roemeri* ; Kentucky, *Melocrinus oblongus*, WACHSMUTH & SPRINGER (50).—(Niagara), Indiana : *Pisocrinus*, *Zophocrinus*, *Stephanocrinus*, *Caryocrinus*, *Holocystites* ; BEACHLER (6).—(Wenlock), Dudley, England : *Botryocrinus quinquelobus*, BATHER (2) ; *Mastigocrinus loreus*, BATHER (3) ; *Cyathocrinus acinotubus* and *C. valatus*, BATHER (4).

#### IV.—SYSTEMATIC.

##### 1. HOLOTHURIOIDEA.

A † prefixed indicates that the reference or the paragraph following is palæontological.

*Acanthotrochus* : wheel-spicules ; LUDWIG, Z. wiss. Zool. liv, p. 358.

*Bohadschia marmorata*, MINCHIN, Ann. N. H. (6) x, p. 275.

*Chiridota*, wheel-spicules of, p. 352 ; *C. lævis*, Fabr., *rotifera*, Pourt., *purpurea*, Less., *contorta*, Ludw., p. 357 ; *C. pisanii*, Ludw., p. 352 ; *C. rufescens*, Br., *variabilis*, Semp., *amboinensis*, Ludw., *liberata*, Sluit., p. 354 ; LUDWIG, Z. wiss. Zool. liv.

+*Chirodota convexa*, Whidb., *C. ? gracillima*, Whidb. ; WOODS, Cat. Typ. Foss. p. xvi.

- Holothuria catanensis*, *impatiens*, p. 275, *tubulosa*, *sanctori*, p. 281, *nigra*, p. 273 ; MINCHIN, Ann. N. H. (6) x. *H. nigra*, auct., *intestinalis*, A. & R., *tremula*, Gunn. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 522. *H. poli*, Delle Chiaje, *forskali*, Delle Chiaje, *catanensis*, Grube (sub *forskali*), *lamperti*, Ludw., *lagoena*, Haacke, *klunzingeri*, Lampert, *pervicax*, Sel., *marenzelleri*, Ludw., *marmorata*, Jaeg., *fusco-cinerea*, Jaeg. ; *H. koellikeri*, Semp., noticed : LUDWIG & BARTHEL, Z. wiss. Zool. liv, p. 632.
- Muelleria mauritiana*, Quoy. & Gaim., noticed ; LUDWIG & BARTHEL, Z. wiss. Zool. liv, p. 632.
- Myriotrochus*, wheel-spicules of, *M. rinki*, Steenstrup ; LUDWIG, Z. wiss. Zool. liv, p. 359.
- Oligotrochus vitreus*, wheel-spicules ; LUDWIG, Z. wiss. Zool. liv, p. 359.
- Psolus* sp., juv. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 521.
- Synapta digitata*, Mont. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 521.
- Thyone raphanus*, Düb. & Kor. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 522.
- Trochoderma*, wheel-spicules ; LUDWIG, Z. wiss. Zool. liv, p. 358.
- Trochodota venusta*, Semon, p. 355, *studerii*, Theel, p. 358, wheel-spicules ; LUDWIG, Z. wiss. Zool. liv.

## 2. ECHINOIDEA.

- †An Echinoid spine : *Radiolus radiatus-tubulatus*, Permian, Timor, described and figured ; ROTHPLETZ, Palæontogr. xxxix, p. 74.
- Abatus cavernosus*, Phil. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 4.
- †*Acrosalenia decorata*, Haime, Corallian Boulonnais, p. 59, Astartian Boulonnais, p. 63, Kimmeridgian Boulonnais, p. 69, *A. spinosa*, Ag., *lycetti*, Wright, *pustulata*, Forbes, p. 42, *hemicidaroides*, Wright, *legayi*, R., *pulchella*, Cott., *porifera*, Cott., *marioni*, Cott., *lamarcki*, Phill., *bradfordiensis*, Phill., *wastensis*, R., *lowei*, Wright, Bathonian Boulonnais, p. 43, *königi*, Desm., Portlandian Boulonnais, pp. 80 & 81 ; RIGAUX. *A. rarispina*, McCoy ; see *Hemicidaris minor* ; *A.* sp. ; WOODS, Cat. Type Foss. p. 30.
- †*Agassizia* ; GREGORY, Bull. Geol. Soc. Am. iii, pp. 105-107.
- †*Anorthopygus orbicularis*, Cotteau ; LOVEN, Bih. Sv. Ak. Handl. xviii, (4) No. 1, p. 51.
- Arachnoides placenta*, Linn., p. 63, *zelandiæ*, Gray, p. 65 ; LOVEN, Bih. Sv. Ak. Handl. xviii, (4) No. 1.
- †*Arachnopleurus reticulatus*, Duncan & Sladen, Mid. Eocene, Spain ; NICKLÈS, Ann. Hébert, i, p. 204, pl. viii, figg. 8 & 9.
- †*Arbacia inflata*, McCoy, see *Cottaldia* species.
- †*Archæocidaris urei*, Fleming ; WOODS, Cat. Type Foss. p. 30.
- †*A. ? selwyni*, n. sp., Permo-Carboniferous, New South Wales ; ETHERIDGE, Pal. Mem. N.S.W. v, p. 67.

- † *Archæopneustes*, n. g. (type, *Palæopneustes hystrix*, A. Ag.), with *A. abruptus*, n. sp., Upper Tertiary, Barbados; GREGORY, Q. J. Geol. Soc. xlviii, p. 163.
- † *Archæopneustes*; GREGORY, Bull. Geol. Soc. Am. iii, p. 107.
- Aspidodiadema antillarum*, A. Ag.; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 32.
- † *Asterostoma cubense*, Cotteau, referred to *Archæopneustes*, and *jimenoi*, Cotteau, referred to *Palæopneustes*; GREGORY, Q. J. Geol. Soc. xlviii, p. 167.
- Asthenosoma hystrix*, Wyv. Th., variation in colour and calcification, *A. fenestratum*, regarded as syn.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526. *A. varium*, Grube; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 26, 45, 52.
- † *Australanthus*, Bittn., adopted as a subgenus of *Cassidulus*, by GREGORY, Geol. Mag. (n.s.) Dec. iii, ix, p. 436.
- † *Breynella*: in Eocene of North America; GREGORY, Bull. Geol. Soc. Am. iii, p. 104.
- † *Cardiaster suborbicularis*, see *Holaster*.
- † *Cardiaster lehmanni*, n. sp., Senonian, Schleswig-Holstein; STOLLEY, MT. Min. Inst. Kiel, i, p. 267.
- † *Cassidulus florescens*, n. sp., Upper Eocene; GREGORY, Geol. Mag. (n.s.) Dec. iii, ix, p. 435.
- Centrostephanus coronatus*, A. Ag.; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 32.
- Cidaris papillata*, Leske; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526, and LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 19 & 52: *C. thouarsi*, Ag.; LOVEN, t. c. p. 21.
- †; *Cidaris*: in Eocene of N. America; GREGORY, Bull. Geol. Soc. Am. iii, p. 104. *C. blumenbachi*, Münst., *florigemma*, Phill., *houlefortensis*, Cott., Oxfordian, Boulonnais, p. 52, *C. species*, Bathonian, Boulonnais, p. 42, *C. coronata*, Goldf., Astartian, Boulonnais, p. 67, *C. florigemma*, Phill., p. 73, *beaugrandi*, Cott., p. 75, Kimmeridgian, Boulonnais, *C. legayi*, R. S., p. 81, *florigemma*, Phill., p. 85, Portlandian, Boulonnais, *C. florigemma*, Phill., Corallian, Boulonnais, p. 59; RIGAUX (42). *C. gaultina*, Forbes, p. 30, *sedgwicki*, Seeley, *C. species*, p. 31; WOODS, Cat. Type Foss. *C. melitensis*, Wright; GREGORY, Bull. Geol. Soc. Am. iii, p. 105. *C. cenomanensis*, Cott.; BIGOT, Bull. Soc. L. Norm. (4) v, p. 54.
- Clypeastridae*: dental system; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 55.
- Clypeaster reticulatus*, Linn.; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 55.
- † *Clypeus altus*, McCoy, *excentricus*, McCoy (sub *C. sinuatus*), *sinuatus*, Leske; WOODS, Cat. Type Foss. p. 31. *C. plotii*, Klein, *milleri*, Wright, Bathonian, Boulonnais; RIGAUX, p. 42.
- † *Collyrites bicordata*, Des., Oxfordian, Boulonnais; RIGAUX, p. 51. *C. ovalis*, Leske; WOODS, Cat. Type Foss. p. 31.

- † *Cottaldia* species ; Woods, Cat. Type Foss. p. 31.
- † ; *Cyphosoma supracorallinum*, Cott., Astartian, Boulonnais, p. 65, *C. supracorallinum*, Cott., Kimmeridgian, Boulonnais, pp. 72 & 73, *C. legayi*, Rig., Portlandian, Boulonnais, p. 81 ; RIGAUX. *C. impressa*, Seeley, see *Echinocyphus*.
- † *Cystechinus crassus*, Greg. ; JUKES-BROWNE & HARRISON, Q. J. Geol. Soc. xlviii, p. 194, and GREGORY, Bull. Geol. Soc. Am. iii, p. 107.
- Diadema saxatile*, Linn. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 31, 36, 51.
- † ; *Diadema fungoideum*, and *intertuberculatum*, Seeley, see *Pseudodiadema*. *D. (Tetragramma ?) scriptum*, Seeley, see *Diplopodia*.
- † *Diplopodia pentagona*, McCoy, *scriptum* [sic], Seeley ; Woods, Cat. Type Foss. p. 31.
- † ; *Discoidea cylindrica* Ag. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 47, 52. *D. marginalis*, McCoy, see *Holcotypus hemisphaericus*. *D. minima*, Desor ; Woods, Cat. Type Foss. p. 31.
- † *Dysaster symmetricus*, McCoy, see *Collyrites ovalis*.
- † ; *Echinanthus*, = *Breynella* ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104. *E. quinquefaria*, Say, discussed ; GREGORY, *t. c.* p. 105. *E. reticulatus*, Linn. ; GREGORY, *t. c.* p. 107.
- † ; *Echinarachnius* : in Eocene of N. America ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104. *E. excentricus* ; GREGORY, *t. c.* p. 107.
- Echinarachnius parma*, Lamk. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 66.
- † ; *Echinobrissus griesbachi*, Wright, *clunicularis*, Des., *goldfussi*, Des., *amplus*, Des., *elongatus*, d'Orb., *woodwardi*, Wright, *quadratus*, Wright, Bathonian, Boulonnais, p. 42 : *E. scutatus*, Lam., Corallian, Boulonnais, p. 59 : *E. scutatus*, Lam., Astartian, Boulonnais, p. 65 : *E. perroni*, Cott., Kimmeridgian, Boulonnais, p. 72 : *E. haimeii*, Wright, Bolonian, Boulonnais, p. 78 : *E. rigauxi*, Cott., p. 81, *brodiei*, Wright, Portlandian, Boulonnais, p. 85 ; RIGAUX (42).
- Echinocidaris nigra*, Mol. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 33.
- † ; *Echinoconus vulgaris*, d'Orb. ; STOLLEY, MT. Min. Inst. Kiel, i, p. 269. *E. subrotundus*, Mantell ; Woods, Cat. Type Foss. p. xvi.
- † *Echinocorys vulgaris*, Breyn., (= *E. scutatus*) ; STOLLEY, MT. Min. Inst. Kiel, i, p. 264.
- Echinocyamus angulosus*, Leske ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 69.
- † *Echinocyphus impressus*, Seeley ; Woods, Cat. Type Foss. p. 32.
- Echinometra mathæi*, Blainv., p. 33, *lucunter*, Linn., pp. 43, 44, 51, 52, 55 ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1.
- Echinus acutus*, Lamk., *esculentus*, Linn., *elegans*, Düb. & Kor., p. 528, *microstoma*, Wyv. Th., p. 529 ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii. *E. parvituberculatus*, Blainv. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 11. *E. miliaris*, Leske, p. 161, *esculentus*, Linn., pp. 33, 51, *angulosus*, Leske, p. 33 ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1.

- † ; *E. diademata*, McCoy, see *Stomechinus germinans*. *E. petallatus*, McCoy, see *S. gyratus*.
- † *Enallaster columbianus*, Lea, *karsteni*, de Lor. ; GREGORY, Bull. Geol. Soc. Am. iii, p. 103.
- Encope emarginata*, Leske ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 65.
- † *Eocidaris*, abandoned ; GREGORY, Bull. Geol. Soc. Am. iii, p. 102.
- † *Eupatagus decipiens*, Tate ; see *Macropneustes*.
- † *Euspatangus*, in Eocene of N. America ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104.
- † *Galerites albogalerus*, Leske ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 49.
- † *Galeropygus agariciformis*, Forbes ; WOODS, Cat. Type Foss. p. 32.
- † *Goniophorus lunatus*, Ag., var. *minutus*, Seeley ; WOODS, Cat. Type Foss. p. 32.
- † *Glypticus hieroglyphicus*, Ag., Corallian, Boulonnais ; RIGAUX (42), p. 59.
- Goniocidaris canaliculata*, A. Ag. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 5.
- † *Hardouinia*, adopted as subgenus of *Breynella*, by GREGORY, Geol. Mag. (n.s.) iii, ix, p. 436.
- † *Hemiaster mccoysi*, Seeley ; WOODS, Cat. Type Foss. p. 32.
- † ; *Hemicidaris confluent*, McCoy ; see *Acrosalenia* sp. *H. minor*, Ag. ; WOODS, Cat. Type Foss. p. 32. *H. luciensis*, d'Orb., *legayi*, R., *langrunensis*, Cott., Bathonian, Boulonnais, p. 42, *intermedia*, Forbes, Oxfordian, Boulonnais, p. 52, *intermedia*, Forbes, Corallian, Boulonnais, p. 59, *hoffmanni*, Ag., p. 65, *agassizi*, Röm., *intermedia*, Forbes, Astartian, Boulonnais, p. 67, *intermedia*, Forbes, p. 72, *davidsoni*, Wright, p. 75, Kimmeridgian, Boulonnais, *purbeckensis*, Forbes, Bolonian, Boulonnais, p. 78, *davidsoni*, *brillensis*, *morinicum*, R. S., Portlandian, Boulonnais, pp. 80 & 81 ; RIGAUX (42).
- † *Hemipedita tuberculosa*, Wright, Oxfordian, Boulonnais, p. 52, *bouchardi*, Wright, Portlandian, Boulonnais, p. 81 ; RIGAUX.
- † ; *Holaster simplex*, Shumard, = *H. laevis*, Luc. ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104. *H. suborbicularis*, Brong. ; WOODS, Cat. Type Foss. p. 32.
- † ; *Holotypus depressus*, Des., Bathonian, Boulonnais, p. 42, *depressus*, Phill., Oxfordian, Boulonnais, p. 51, *corallinus*, d'Orb., Astartian, Boulonnais, pp. 63 & 65, *corallinus*, d'Orb., Corallian, Boulonnais, p. 59 ; RIGAUX. *H. depressus*, Leske ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 51. *H. planatus*, Roem. ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104. *H. hemisphaericus*, Ag. ; WOODS, Cat. Type Foss. p. 32.
- † *Isopneustes heberti*, Maëstrichian of Almaceres, NICKLÈS, Ann. Hébert. i, p. 202, pl. ix, figg. 12 & 13, n. sp.
- † *Laganum decagonale*, Lesson, n. var. *rectum*, Tertiary, W. Australia ; GREGORY, Geol. Mag. (n.s.), Dec. iii, ix, p. 433. *L. decagonale*, Blainv. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 68.

- Lytechinus semituberculatus*, Val. ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 33.
- † *Macropneustes decipiens*, Tate, olim *Eupatagus* ; GREGORY, Geol. Mag. (n.s.), Dec. iii, ix, p. 436.
- † *Mellita saxiforis* ; GREGORY, Bull. Geol. Soc. Am. iii, p. 107.
- † ; *Micraster glyphus*, Cotteau, p. 255, *gibbus*, Lam., p. 260 ; STOLLEY, MT. Min. Inst. Kiel, i.
- † *M. haasi*, p. 257, *gottschei*, p. 258, *schroederi*, Senonian, Schleswig-Holstein, STOLLEY, MT. Min. Inst. Kiel, i, p. 259, n. spp.
- † *Monostychia*, in Eocene of N. America ; GREGORY, Bull. Geol. Soc. Am. iii, p. 104.
- † *Mortonia rogersi*, Desor, synonymy discussed ; GREGORY, Bull. Geol. Soc. Am. iii, p. 105.
- † ; *Nucleolites æqualis*, McCoy, *clunicularis*, Phill., and *pyramidalis*, McCoy, *planulatus*, McCoy ; WOODS, Cat. Type Foss. p. 32.
- † *Offaster pilula*, Lam., *corculum*, Goldf. ; STOLLEY, MT. Min. Inst. Kiel, i, p. 265.
- † *Palæechinus gigas*, McCoy, p. 32, *intermedius*, Keeping, *sphaericus*, McCoy, p. 33 ; WOODS, Cat. Type Foss.
- † ; *Pelæechinus* : LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 33. *P. corallinus*, Wright ; WOODS, Cat. Type Foss. p. 33.
- † *Pedina legayi*, Cott, Bathonian, Boulonnais, p. 42, *sublevis*, Ag, Corallian, Boulonnais, p. 59 ; RIGAUX.
- † *Peltastes wrighti*, Desor, p. xvi, *hieroglyphica*, Keeping, *wiltshirei*, Seeley, *wrighti*, Desor, p. 33 ; WOODS, Cat. Type Foss.
- † ; *Periarchus*, accepted ; GREGORY, Bull. Geol. Soc. Am. iii, p. 105 ; *P. altus*, Conrad ; GREGORY, *t. c.* p. 105.
- † *Perischodomus biserialis*, McCoy ; WOODS, Cat. Type Foss. p. 33.
- Phormosoma placenta*, Wyv.-Th. ; BELL, Sci. P. R. Dubl. Soc. (n.s.), vii, p. 526.
- † *Pileus hemisphaericus*, Desor ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 51.
- † *Plesiospatangidae*, revised ; GREGORY, Q. J. Geol. Soc. xlviii, p. 165.
- † *Polycyphus normannus*, Des., Bathonian, Boulonnais, p. 42 ; RIGAUX.
- † *Pseudasterostoma jimenoi*, see *Asterostoma jimenoi*.
- † *Pseudocidaris quenstedti*, Cott., Oxfordian, Boulonnais, p. 52, *thurmanni*, Et., Corallian, Boulonnais, p. 59 ; RIGAUX.
- † ; *Pseudodiadema depressum*, Ag., *subcomplanatum*, Des., Bathonian, Boulonnais, p. 42, *superbum*, Des., *pellati*, Cott., *princeps*, Des., *aroviense*, Des., *bipunctatum*, Des., Oxfordian, Boulonnais, p. 52, *florescens*, Ag., *hemisphaericum*, Ag., Corallian, Boulonnais, p. 59, *mamillatum*, Röm., p. 63, *planissimum*, Astartian, Boulonnais, p. 67, *mamillatum*, Röm., Kimmeridgian, Boulonnais, p. 75, *planissimum*, Bolonian, Boulonnais, p. 78, *sauvagei*, Rig., *baccatum*, R. S., p. 81, *thirriæ*, Etall., Portlandian, Boulonnais, p. 85 ; RIGAUX. *P. barretti*, S. P. Woodw., *carteri*, S. P. Woodw., *fungoideum*, Seeley, p. 33, *intertuberculatum*, Seeley, *inversum*, Seeley, p. 34 ; WOODS, Cat. Type Foss.

- †; *Pygaster laganoides*, Ag., *trigeri*, Cott., Bathonian, Boulonnais, p. 42 *umbrella*, Astartian, Boulonnais, p. 66, *macrocyphus*, Wright, Kimmeridgian, Boulonnais, p. 75, *gresslyi*, Des., Corallian, Boulonnais, p. 59; RIGAUX (42). *P. semisulcatus*, Phill.; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 51. *P. brevifrons*, McCoy, see *P. semisulcatus*. *P. semisulcatus*, Phill.; WOODS, Cat. Type Foss. p. 34. *P. sublævis*, McCoy, see *Galeropygus agariciformis*.
- † *Pygurus michelini*, Cott., Bathonian, Boulonnais, p. 42, *blumenbachi*, Ag., Corallian, Boulonnais, p. 59, Kimmeridgian, Boulonnais, pp. 70 & 72, and Astartian, Boulonnais, pp. 63 & 65, *jurensis*, Marc., Astartian, Boulonnais, pp. 66 & 67, Kimmeridgian, Boulonnais, p. 75; RIGAUX (42).
- †; *Rhabdocidaris orbignyana*, Des., *boloniensis*, Wright, Astartian, Boulonnais, p. 67, Kimmeridgian, Boulonnais, pp. 69 & 72; RIGAUX. *R. thurmanni*, de Lor., var. *regens*, Whiddb.; WOODS, Cat. Type Foss. p. 34.
- † *Rhoechinus irregularis*, Keep.; WOODS, Cat. Type Foss. p. 34.
- † *Rhynchopygus guadaloupensis*, Mich., = *R. caribbæarum*; GREGORY, Bull. Geol. Soc. Am. iii, p. 105.
- Salenia pattersoni*, Al. Ag.; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, p. 34.
- †; *Salenia hieroglyphica*, Keep., and *S. (Hyposalenia) wiltshirei*, Seeley, see *Peltastes*; *S. woodwardi*, Seeley; WOODS, Cat. Type Foss. p. 34.
- † *Sarsella*, in Eocene of N. America; GREGORY, Bull. Geol. Soc. Am. iii, p. 104.
- † *Schizaster parkinsoni*, DeFrance, *scillæ*, Desmoul.; GREGORY, Bull. Geol. Soc. Am. iii, pp. 105 & 107. *S. cuneatus*, Greg.; WOODS, Cat. Type Foss. p. xvi. *S.*, sp., W. Australia; GREGORY, Geol. Mag. (n.s.) Dec. iii, ix, p. 436.
- †; *Scutella striatula*, Rem. (pars) = *Echinarachnius excentricus*; *S. rogersi*, Morton, discussed; GREGORY, Bull. Geol. Soc. Am. iii, pp. 105 & 107. *S. quinquefaria*, Say; see *Echinanthus*.
- † *Sismondia marginalis* and *plana*, Conrad, = *Monostychia*; GREGORY, Bull. Geol. Soc. Am. iii, p. 105.
- Spatangus purpureus*, O. F. Müll., *raschi*, Loven; BELL, Sci. P. R. Dublin Soc. (n.s.) vii, p. 529.
- † *Spatangus columbianus*, Lea; see *Enallaster*.
- † *Stegaster fucki*, n. sp., Senonian, Schleswig Holstein; STOLLEY, MT. Min. Inst. Kiel, i, p. 268.
- †; *Stomechinus serratus*, Des., Bathonian, Boulonnais, p. 42, *S. gyratus*, Des., Oxfordian, Boulonnais, p. 52, *S. gyratus*, Ag., Corallian, Boulonnais, p. 59 (and WOODS, Cat. Type Foss. p. 34), *S. perlatus*, Ag., p. 63, Astartian, Boulonnais, *S. perlatus*, Des., Astartian, Boulonnais, p. 67, and Kimmeridgian, Boulonnais, p. 73; RIGAUX. † *S. germinans*, Phill.; WOODS, Cat. Type Foss. p. 34.
- Strongylocentrotus droebachiensis*, O. F. Müll.; BELL, Sci. P. R. Dublin Soc. (n.s.) vii, p. 523, and LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1, pp. 13 & 15.

† *Temnechinus* ; GREGORY, Bull. Geol. Soc. Am. iii, p. 103.

*Tripneustes gratilla*, Linn., p. 33, *esculentus*, Leske, p. 38 ; LOVEN, Bih. Sv. Ak. Handl. xviii (4), No. 1.

### 3. ASTEROIDEA.

*Asterina gibbosa*, Penn. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.

*Asterias rubens*, Linn., *murrayi*, Bell ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525. *A. vulgaris* : embryology ; FIELD, Q. J. Micr. Sci. (n.s.) xxxiv, p. 105.

*Astropecten sphenoplax*, W. Coast of Ireland ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 522, n. sp.

*Astropecten irregularis*, Penn. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 522.

† ; *Astropecten orion*, Forbes ; WILLIAMSON, Proc. Geol. Soc. 1892, p. 184. *A. lorioli*, and *martis*, Wright, *A. suprajurensis*, Sauv., Bolonian, Boulonnais, p. 78 ; RIGAUX. *A. scarburgensis*, Wright, *A. hastingie*, Forbes, p. 35, *rectus*, McCoy ; WOODS, Cat. Type Foss, p. 35.

*Cribrella sanguinolenta*, O. F. Müll. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.

*Culcita veneris*, Perr., pp. 73 & 96, *coriacea*, M. T., pp. 74 & 90, *novæ-guineæ*, M. T., pp. 74 & 77, *grex*, M. T., pp. 74 & 87, *acutispinosa*, Bell, pp. 74 & 95, *arenosa*, Perr., pp. 74 & 92, *pentangularis*, Gray, p. 74, *C. schmideliana*, Retz., pp. 75 & 97 ; HARTLAUB, Notes Leyd. Mus. xiv. *C. discoidea*, Lam. ; see *C. schmideliana*. *C. pulverulenta*, Perr. ; see *C. novæ-guineæ*.

*Culcita plana* ; HARTLAUB, Notes Leyd. Mus. xiv, pp. 74 & 84, Samoa, Viti, New Guinea, Phillipines, Amboina, Mauritius, n. sp.

† *Goniaster cassiope*, Kimmeridgian, Boulonnais, p. 72 ; RIGAUX. *G. impressæ*, Quenst. ; LENT (28). *G. (Goniodiscus) rectilineus*, McCoy ; see *Pentagonaster*.

*Luidia sarsi*, Dub. & Kor., *ciliaris*, Phil. ; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.

† *Monaster*, n. subg. of *Palæaster* ; ETHERIDGE, Pal. Mem. N.S.W. v, p. 70.

† *Palæaster* (*Monaster*) *stutchburii* and *P. (Monaster) giganteus*, Permo-Carboniferous, New S. Wales ; ETHERIDGE, Pal. Mem. N.S.W. v, pp. 73 & 74, n. spp.

† *Palæaster* (*Monaster*) *clarkei*, De Kon., Permo-Carboniferous, New S. Wales ; ETHERIDGE, Pal. Mem. N.S.W. v, p. 71. *P. eucharis*, Hall, oral surface ; COLE, Bull. Geol. Soc. Am. iii, p. 512. *P. hirudo*, *ruthveni*, Forbes, *squamatus*, Salter ; WOODS, Cat. Type Foss. p. 35.

† *Palæasterina primæva*, Forbes, *ramseyensis*, Hicks ; WOODS, Cat. Type Foss. p. 35.

† *Pentagonaster rectilineus*, McCoy ; WOODS, Cat. Type Foss. p. 36.

† *Plumaster ophiuroides*, Wright ; WOODS, Cat. Type Foss. p. 36.

- Porania pulvillus*, O. F. Müll.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.
- Psilaster andromeda*, M. & T.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 524.
- Randasia spinulosa*, Gray, see *Culcita coriacea*; *R. granulata*, Gray, see *C. pentangularis*. *R. luzonica*, Gray, = *Culcita*, sp.; HARTLAUB, Notes Leyd. Mus. xiv, p. 77.
- Stichaster roseus*, O. F. Müll.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.
- †*Uraster carinatus*, Wright; WOODS, Cat. Type Foss. p. 36. *U. hirudo*, ruthveni, Forbes, see *Palæaster*; *U. primævus*, Forbes, see *Palæasterina*.

#### 4. OPHIUROIDEA.

- New classification of *Ophiuroids*, based on articulation of arm-ossicles, into *Streptophiuræ*, *Astrophium*, *Zygophiuræ*, and arrangement of genera under these groups according to characters of minor importance; BELL, P. Z. S. 1892.
- Amphiura squamata*, M. T.; MACBRIDE, Q. J. Micr. Sci. (n.s.) xxxiv, p. 129 (embryology and anatomy). *A. filiformis*, O. F. Müll.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526.
- Astrophium*, new ordinal name; BELL, P. Z. S. 1892, p. 180.
- †*Eucladia*, H. Woodw., removed from *Ophiuroidea*; BELL, t. c. p. 182.
- †*Onychaster*, M. & W., position discussed; BELL, t. c. p. 182.
- Ophiobursa hystrix*, Lym.; BELL, P. Z. S. 1892, p. 183, and Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526.
- Ophiocoma nigra*, O. F. Müll.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526.
- †*Ophioderma carinata*, Wright; WOODS, Cat. Type Foss. p. 36.
- †*Ophiolepis leckenbyi*, Wright; WOODS, Cat. Type Foss. p. 36.
- Ophiomaza obscura*, Ljung.; BELL, P. Z. S. 1892, p. 182.
- Ophioteresis*, n. g. for *O. elegans*, n. sp., Seychelles; BELL, P. Z. S. 1892, p. 179.
- Ophiothrix fragilis*, Linn., and *leutkeni*, Wyv.-Thom.; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 526.
- Ophiura ciliaris*, Linn., and *albida*, Forbes; BELL, Sci. P. R. Dubl. Soc. (n.s.) vii, p. 525.
- †*Ophiura salteri*, Forbes; see *Protaster*.
- †*Protaster*, Forbes, referred to *Streptophiuræ*; BELL, P. Z. S. 1892, p. 182; *P. petri*, Salter, *salteri*, Forbes, p. 36, *sedgwicki*, Forbes, p. 37; WOODS, Cat. Type Foss.
- Streptophiuræ*, new ordinal name; BELL, P. Z. S. 1892, p. 179.
- †*Taniaster*, Bill., referred to *Streptophiuræ*; BELL, t. c. p. 182.
- Zygophiuræ*, new ordinal name; BELL, t. c. p. 180.

## 5. CRINOIDEA.

Introduction to anatomy, with special reference to Fossils ; BATHER, (5) p. 87.

†; *Actinocrinus*, ind. sp., Carboniferous, New S. Wales ; ETHERIDGE, Pal. Mem. N.S.W. v, p. 77. *A. pulcher*, McCoy (? *Periechocrinus*); WOODS, Cat. Type Foss. p. 37.

† *Actinometra loveni*, *wurtembergiae*, P. H. Carp. ; WOODS, Cat. Type Foss. p. 37.

† *Amphorocrinus atlas*, *olla*, McCoy ; WOODS, Cat. Type Foss. p. 37.

*Antedon bifida*, Penn. ; BELL, Sci. P. R. Dubl. Soc. (n.s.), vii, p. 522. *A. rosacea*, embryology ; SEELIGER (44).

*Antedon emendatrix*, Mauritius, BELL, Ann. N. H. (6) ix, p. 427, n. sp.

†; *Antedon* sp. ; STOLLEY, MT. Min. Inst. Kiel, i, p. 255. *A. aspera*, Quenst., *costata*, Goldf., *depressa*, P. H. Carp., *scrobiculata*, Goldf. ; WOODS, Cat. Type Foss. p. 37.

†; *Apiocrinus elegans*, Defr., Bathonian, Boulonnais, p. 43, *A. roissyanus*, d'Orb., Corallian, Boulonnais, p. 59; RIGAUD. *A. exutus*, McCoy ; WOODS, Cat. Type Foss. p. 38.

† *Archæocrinus*, OEHLERT, Bull. Soc. Géol. (3) xix, p. 840.

† *Austinocrinus zitteli* (columnals only), p. 251, *rothpletzi* (columnals only), p. 252, *meyni* (columnals only), Senonian, Schleswig-Holstein, STOLLEY, MT. Min. Inst. Kiel, i, p. 254, n. spp.

† *Balanocrinus pentagonalis*, Goldf. ; LENT, p. 624.

† *Botryocrinus pinnulatus*, Bather, additional description ; BATHER, Ann. N. H. (6) ix, p. 192. *B. decadactylus* (Salter, MS.), Bather; WOODS, Cat. Type Foss. p. 38.

† *B. quinquelobus*, Wenlock Limestone, Dudley, BATHER, Ann. N. H. (6) ix, p. 189, n. sp.

† *Bourgueticrinus cylindricus*, *milleri*, *politicus*, McCoy ; WOODS, Cat. Type Foss. p. 38. *B. ellipticus*, *B.* sp., Mill. ; STOLLEY, MT. Min. Inst. Kiel, i, p. 254.

† *Calceocrinus abdominalis*, *fletcheri*, *gradatus*, Salter, *serialis* (Austin MS. sp.) ; WOODS, Cat. Type Foss. p. 38.

† *Callicrinus beachleri*, n. sp., Silurian, Indiana, WACHSMUTH & SPRINGER, Am. Geol. x, p. 140.

† *Caryocrinus ornatus*, Say ; BEACHLER, Am. Geol. ix, p. 408.

† *Cheirocrinus abdominalis*, *fletcheri*, *gradatus*, *serialis*, Salter : see *Calceocrinus*.

† *Cromyocrinus nuciformis*, McCoy ; WOODS, Cat. Type Foss. p. 38.

†; *Ctenocrinus* sp., Devonian, la Manche ; OEHLERT, Bull. Soc. Géol. (3) xix, p. 835. *C.* sp., Mid. Devon., Manitoba ; WHITEAVES, Contr. Canad. Pal. i, p. 276.

† *Cupressocrinus calyx*, McCoy ; see *Hydreionocrinus* ; *C. impressus*, McCoy ; see *H. mccoyanus*.

†; *Cyathocrinus*, discussed and re-diagnosed ; BATHER, Ann. N. H. (6) ix, p. 202 : American and Gotland species ; BATHER, t. c. p. 213.

*C. distortus*, Phill.; see *C. planus*. *C.?* Carboniferous, New S. Wales; ETHERIDGE, Pal. Mem. N.S.W. v, p. 81. *C. quinquangularis*, Phill., referred to *Botryocrinus quinquelobus*; BATHER, Ann. N. H. (6) ix, p. 189. *C. arboreus*, Salter, *nom. nud.*, referred to *Mustigocrinus loreus*; BATHER, *t. c.* p. 196. *C. acinotubus*, Ang.; BATHER, *t. c.* p. 213, and WOODS, Cat. Type Foss. p. 39. *C. arboreus, scoparius*, *C. sp.* 11, and *C. spp.*, Salter; WOODS, Cat. Type Foss. pp. xvi & 39. *C. decadactylus*, Salter; see *Botryocrinus*. *C. monile*; see *C. acinotubus*; *C. nodulosus*, Salter, = *Taxocrinus sp.*; WOODS, Cat. Type Foss. p. 39. *C. quindecimalis*, Salter; see *Botryocrinus decadactylus*. *C. squamiferus*, Salter, = *Gissocrinus*; WOODS, Cat. Type Foss. p. 39. *C. vallatus*, Wenlock Limestone, Dudley; BATHER, Ann. N. H. (6) ix, p. 221. *C. planus*, Miller, determined; BATHER, *t. c.* p. 202. *C. alutaceus* (pars), Ang., *monile*, Salter, *nom. nud.*, *mimus*, Salter, *nom. nud.*, *nodulosus*, Salter, *nom. nud.*; see *C. acinotubus*.

† *Cyclocrinus variolarius*, Seeley; WOODS, Cat. Type Foss. p. 39.

† *Diadococrinus kunischi*, W. & Sp.; ECK, Z. geol. Ges. xlv, p. 138.

† *Diamenocrinus*, n. g., p. 836, for *D. jouani*, n. sp., Devonian, la Manche, p. 837; EHLERT, Bull. Soc. Géol. (3) xix.

† *Dendrocrinus? cambrensis*, Hicks; WOODS, Cat. Type Foss. p. 40.

† *Dimerocrinus uniformis*, Salter; *D. multiplex*, Salter, = *Encrinus speciosus*, Ang.; WOODS, Cat. Type Foss. p. 40.

†; *Encrinus wagneri*, Ben., p. 879, *aculeatus*, Mey., p. 890; WAGNER, Z. geol. Ges. xliii. *E. cassianus*, Laube; WOEHRMANN & KOKEN, *op. cit.* xlv, p. 170. *E. gracilis*; see *Dadocrinus kunischi*.

† *Eucalyptocrinus lindahli*, n. sp., Silurian, Tennessee, WACHSMUTH & SPRINGER, Am. Geol. x, p. 139.

† *Ectocrinus fossilis*, Blumenbach, *dichotomus*, McCoy; WOODS, Cat. Type Foss. p. 40.

†; *Gissocrinus*, British species; BATHER, Ann. N. H. (6) ix, p. 207. *G. goniodactylus*, Phillips; WOODS, Cat. Type Foss. p. 40.

† *Glyptasteridae*, EHLERT, Bull. Soc. Géol. (3) xix, pp. 839, *et seq.*

†; *Glyptocrinus neali, dyeri, baeri*; DYCHE, Am. Geol. x, p. 130. *G. basalis*, McCoy; *G. sp.* 1, Salter; WOODS, Cat. Type Foss. p. 40.

†; *Herpetocrinus*; EHLERT, Bull. Soc. Géol. (3) xix, pp. 848 & 849. *H. fletcheri*, Salter; WOODS, Cat. Type Foss. p. 40.

†; *Heterocrinus subcrassus, simplex*; DYCHE, Am. Geol. x, p. 130. *H.?* sp., Ordovician, Piedmont, Virginia; DARTON, Am. J. Sci. xlv, p. 52.

† *Hexacrinidae*; EHLERT, Bull. Soc. Géol. (3) xix, pp. 841, *et seq.*

† *Hydreionocrinus calyx*, McCoy, *mccoyanus*, De Kon. & Le Hon.; WOODS, Cat. Type Foss. p. 40.

† *Hypocrinus mülleri*, Beyr.; ROTHPLETZ, Palæontogr. xxxix, p. 74.

† *H. (?) pyriformis*, Permian, Timor, ROTHPLETZ, Palæontogr. xxxix, p. 75, n. sp.

† *Hyptiocrinus*, n. g., for *H. typus*, n. sp., Silurian, Indiana, WACHSMUTH & SPRINGER, Am. Geol. x, p. 138.

† *Ichthyocrinus bacchus, mccoyanus*, Salter; WOODS, Cat. Type Foss. p. 41.

- † *Idiocrinus*, n. g., p. 135, for *I. elongatus*, p. 136, *I. ventricosus*, p. 137, n. spp., Silurian, Indiana; WACHSMUTH & SPRINGER, Am. Geol. x.
- † *Koninckocrinus agassizi*, Seeley; see *Torynocrinus canon*. *K. rugosus*, d'Orb.; see *Cyclocrinus variolarius*.
- † *Mariacrinus flabellatus*, Salter; see *Melocrinus*.
- † *Mastigocrinus*, n. g., p. 195, for *M. loreus*, n. sp., p. 196, Wenlock Limestone, Dudley; BATHER, Ann. N. H. (6) ix.
- † *Melocrinus flabellatus*, Salter; WOODS, Cat. Type Foss. p. 41.
- † *M. roemeri*, Silurian, Tennessee, p. 142, *oblongus*, Silurian, Indiana and Kentucky, p. 143, *parvus*, Silurian, Indiana, p. 144, WACHSMUTH & SPRINGER, Am. Geol. x, n. spp.
- †; *Millericrinus mespiliformis*, Schloth., abnormality; BOEHM, Z. geol. Ges. xliii, p. 741. *M. pratti*, Gray; WOODS, Cat. Type Foss. p. 41. *M. horridus*, d'Orb., Oxfordian, Boulonnais; RIGAUX, p. 52.
- † *Myelodactylus*; EHLERT, Bull. Soc. Géol. (3) xix, pp. 848 & 849: see also *Herpetocrinus*.
- † *Ottawacrinus* compared with *Mastigocrinus*; BATHER, Ann. N. H. (6) ix, p. 201.
- † *Palæocrinus*, discussed; BATHER, Ann. N. H. (6) ix, p. 207.
- † *Pentacrinites briareus*, Miller; see *Extracrinus fossilis*, McCoy.
- † *Pentacrinus pentagonalis*, Goldf., *normanianus*, Lor., *cotteaui*, Lor., Oxfordian, Boulonnais, p. 52, *P. amblyscalaris*, Thurm., Corallian, Boulonnais, p. 59, *P. rupellensis*, Lor., Astartian, Boulonnais, p. 67; RIGAUX (42). *P. carinatus*, Roem., *bicoronatus*, Hag.; STOLLEY, MT. Min. Inst. Kiel, i, p. 249. *P. sp.*, columnals in Jurassic, California; MILLS, Bull. Geol. Soc. Am. iii, p. 428. *P. goldfussi*, McCoy; WOODS, Cat. Type Foss. p. 41. *P. dichotomus*; see *Extracrinus*.
- † *Phialocrinus* re-defined, p. 98, *konincki*, de Kon., p. 107; ETHERIDGE, Pal. Mem. N.S.W. v.
- † *Phialocrinus princeps*, p. 110, *P. ? nodosus*, p. 112, *stephensi*, p. 113, Permo-Carboniferous, New S. Wales, ETHERIDGE, Pal. Mem. N.S.W. v., n. spp.
- † *Periechocrinus indicator*, Carboniferous, New S. Wales, ETHERIDGE, Pal. Mem. N.S.W. v, p. 78, n. sp.
- †; *P.*, sp. ind., Carboniferous, New S. Wales; ETHERIDGE, Pal. Mem. N.S.W. v, p. 79. *P. limonium*, Salter; WOODS, Cat. Type Foss. p. 41.
- † *Picteticrinus nicoleti*, Des., Bathonian, Boulonnais, p. 43, *beaugrandi*, Lor., Portlandian, Boulonnais, p. 81; RIGAUX.
- † *Pisocrinus gemmiformis*, S. A. Mill., *globosus*, Ringueb.; BEACHLER, Am. Geol. ix, p. 408.
- † *Platycrinidae*, and other *Crinoids*, "Entrochi regulares et irregulares," columnals from Permian, Timor, described and figured; ROTHPLETZ, Palæontogr. xxxix, p. 72.
- †; *Platycrinus pileatus*, Goldf., abnormal; REED, Geol. Mag. (iii) ix, p. 548. *P. diadema*, *megastylus*, McCoy, *P. ? pecten*, Salter, *P.*

- vesiculosus*, McCoy; WOODS, Cat. Type Foss. p. 41. *P. sp.*, Carboniferous, New S. Wales; ETHERIDGE, Pal. Mem. N.S.W. v, p. 131.
- †; *Poteriocrinus*?, Carboniferous, New S. Wales; ETHERIDGE, Pal. Mem. N.S.W. v, p. 81. *P. cressimanus*, McCoy; WOODS, Cat. Type Foss. p. 42. *P. ? sp.*, Ordovician, Piedmont, Virginia; DARTON, Am. J. Sci. xlv, p. 52. *P. excavatus*, McCoy; see *Hydreionocrinus mccoynus*. *P. nuciformis*, McCoy; see *Cromyocrinus*. *P. longidactylus*; see *Scaphiocrinus*.
- † *Reteocrinidæ*; EHLERT, Bull. Soc. Géol. (3) xix, pp. 839, *et seq.*
- † *Raphanocrinus*; EHLERT, Bull. Soc. Géol. (3) xix, p. 840.
- † *Rhodocrinidæ*; EHLERT, Bull. Soc. Géol. (3) xix, p. 839.
- † *Scaphiocrinus longidactylus*, Austin; BATHER, Ann. N. H. (6) ix, p. 203.
- † *Schizocrinus*, ? sp., Ordovician, Piedmont, Virginia; DARTON, Am. J. Sci. xlv, p. 52.
- † *Solanocrinus beaugrandi*, Lor., Kimmeridgian, Boulonnais; RIGAUD, p. 69.
- † *Sphaerocrinus* discussed; BATHER, Ann. N. H. (6) ix, p. 207.
- † *Stephanocrinus osgoodensis*, S. A. Mill.; BEACHLER, Am. Geol. ix, p. 408.
- † *Symbathocrinus*, Carboniferous, New S. Wales; ETHERIDGE, Pal. Mem. N.S.W. v, p. 81.
- †; *Taxocrinus nanus*, Salter, ? *orbignii*, McCoy, *tuberculatus*, Miller, ? *granulatus*, Salter; WOODS, Cat. Type Foss. p. 42. *T. longidactylus*; see *Scaphiocrinus*. *T. marmoratus*, Salter; see *T. tuberculatus*.
- †; *Torynocrinus canon*, Seeley; WOODS, Cat. Type Foss. p. 43. *T. vario-larius*, Seeley; see *Cyclocrinus*.
- † *Thenarocrinus*, referred to the Dendrocrinites; BATHER, Ann. N. H. (6) ix, p. 202.
- † *Tribrachiocrinus* re-described, p. 82; *T. clarkei*, McCoy, p. 90; *T. corrugatus*, Ratte, p. 95; ETHERIDGE, Pal. Mem. N.S.W. v.
- † *Tribrachiocrinus ornatus*, p. 94, *granulatus*, p. 97. Permo-Carboniferous, New S. Wales, ETHERIDGE, Pal. Mem. N.S.W. v, n. spp.
- † *Zophocrinus howardi*, S. A. Mill.; BEACHLER, Am. Geol. ix, p. 408.

## 6. CYSTIDEA.

- † *Agelacrinus pileus*?, Hall; MILLER & FABER, J. Cincinn. Soc. xv, p. 85.
- † *Atelecystis forbesi*, De Kon.; WOODS, Cat. Type Foss. p. 42.
- † *Caryocystites davisii*, McCoy; see *Echinosphæra*.
- Cyclocystoides cincinnatiensis*, Ordovician, Cincinnati, MILLER & FABER, J. Cincinn. Soc. xv, p. 84, n. sp.
- † *C. sp.*, MILLER & FABER, J. Cincinn. Soc. xv, p. 85.
- †; *Echinosphæra davisii*, McCoy; WOODS, Cat. Type Foss. p. 43. *E. kingi*: undescribed species; NOETLING (38).

- † *Helocystites affinis*, n. sp., Silurian, Indiana, MILLER & FABER, J. Cincinn. Soc. xv, p. 87. [The name of the genus should be *Megacystis*; see CARPENTER (1), Record for 1891.]
- † *Lepadocrinus bifasciatus, quadrifasciatus*, Pearce; WOODS, Cat. Type Foss. p. 43.
- † *Lepidodiscus milleri*, SHARMAN & NEWTON, Q. J. Geol. Soc. xlviii, p. 150, n. sp.
- † *Protocystis meneviensis*, Hicks; WOODS, Cat. Type Foss. p. 43.
- † *Prunocystis fletcheri*, Forbes; WOODS, Cat. Type Foss. p. 43.
- † *Pseudocrinites bifasciatus, quadrifasciatus*, Pearce; see *Lepadocrinus*.

## 7. BLASTOIDEA.

- † *Codonaster trilobatus* (*Codaster*, McCoy), *trilobatus*, var. *acutus*, McCoy; WOODS, Cat. Type Foss. p. 43.
- †; *Granatocrinus campanulatus*, McCoy; WOODS, Cat. Type Foss. p. 44. *G. wachsmuthi*, nom. nud.; ETHERIDGE, Pal. Mem. N.S.W. v, p. 119.
- † *Mesoblastus*? *australis*, nom. nud.; ETHERIDGE, Pal. Mem. N.S.W. v, p. 119.
- † *Pentremites campanulatus*, McCoy; see *Granatocrinus*.
- † *Tricælocrinus*? *carpenteri*, nom. nud.; ETHERIDGE, Pal. Mem. N.S.W. v, p. 119.

## XV. VERMES.

BY

FLORENCE BUCHANAN, B.Sc.

### ARRANGEMENT OF RECORD.

A common List of Titles is given, pp. 1-30, and three papers quoted which refer to *Vermes* in general. The Record is then broken up into the following groups, each group being again subdivided into a Biological, a Faunistic, and a Systematic part :—

- I.—HEMICHORDATA, including BALANOGLOSSUS, CEPHALODISCUS, RHABDOPLEURA, pp. 30, 31.
- II.—ANNELIDA, including GEPHYREA, CHÆTOPODA, and HIRUDINEA, pp. 31-52.
- III.—PLATYHELMINTHES, including CESTODA, TREMATODA, NEMERTINEA, and TURBELLARIA, pp. 53-72.
- IV.—NEMATODA, ACANTHOCEPHALA, and CHÆTOGNATHA, pp. 73-82.
- V.—ROTIFERA, pp. 82-88.
- VI.—MESOZOA, p. 88.

### TITLES.\*

- ANDERSON, H. H., & SHEPHARD, J. Notes on Victorian Rotifers. P. R. Soc. Vict. (n.s.) iv, pp. 69-80, pls. xii & xiii. Abstr. in J. R. Micr. Soc. 1893, p. 48.
- ANDREWS, E. A. (1) Notes on the Fauna of Jamaica. Johns Hopk. Univ. Circ. xi, pp. 72-75, *Vermes*, p. 75.  
Very brief, not giving the names of species.
- . (2) Bifurcated Annelids. Am. Nat. xxvi, pp. 725-733, pl. xxi.
- . (2) On the Eyes of Polychætous Annelids. J. Morph. vii, No. 2, pp. 169-222, pls. ix-xi.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

APÁTHY, S. (1) Kritische Bemerkungen über das Frenzel'sche Mesozoon *Salinella*. Biol. Centralbl. xii, pp. 108-123. Transl. in Ann. N. H. ix, pp. 465-482.

——. (2) Contractile und leitende Primitivfibrillen. MT. z. Stat. Neap. x, pp. 355-375, pls. xxv & xxvi, 1 woodcut.  
Studies in Leeches.

APPELLÖF, A. Om Bergensfjordenes faunistiske præg. Bergens Mus. Aarsber. 1891 (2) pp. 4-14.

APSTEIN, C. *Callizona angelina* (Kbg.), Apstein. Festschr. zum 70ten Geburtstage Rudolf Leuckarts. Leipsig (Engelmann): 1892, pp. 44-47, pl. v.

\*ATKINSON, C. F. Note on a Nematode Leaf-Disease. Ins. Life, iv (1891), p. 31.

BALDWIN SPENCER. [See SPENCER, W. B.]

BEDDARD, F. E. (1) Note upon the Encystment of *Ælosoma*. Ann. N. H. (6) ix, pp. 12-19, 2 woodcuts.

——. (2) The Earthworms of the Vienna Museum. T. c. pp. 113-134, pl. vii.

Schmarda's specimens properly described and most of them renamed.

——. (3) On a new genus of *Oligochæta*, comprising five new species provisionally belonging to the Family *Ocnerodrilidæ*. Op. cit. (6) x, pp. 74-97, pls. vi & vii.

——. (4) Preliminary notice of a new Branchiate Oligochæt. Nature, xlv, pp. 109 & 110.

——. (5) A new Branchiate Oligochæt (*Branchiura sowerbyi*). Q. J. Micr. Sci. xxxiii, pp. 325-341, pl. xix.

——. (6) Researches into the Embryology of the Oligochæts. No. 1. On certain points in the development of *Acanthodrilus multiporus*. T. c. pp. 497-540, pls. xxx & xxxi. Abstr. in J. R. Micr. Soc. 1892, p. 611.

——. (7) Two new Genera and some new Species of Earthworms. Q. J. Micr. Sci. xxxiv, pp. 243-278.

——. (8) On the Earthworms collected in Algeria and Tunisia by Dr. Anderson. P. Z. S. 1892, pp. 28-37.

——. (9) On some Species of the Genus *Perichæta* (s. str.). T. c. pp. 153-172, pls. ix & x.

——. (10) On some aquatic Oligochætous Worms. T. c. pp. 349-360, 2 woodcuts.

——. (11) On some Perichætidae from Japan. Zool. Jahrb. Abth. f. Syst. vi, pp. 755-766, pl. xxxii.

- BELL, F. J. Remarks upon the habitat of *Bipalium kewense*. P. Z. S. 1892, p. 258.
- BENHAM, W. B. (1) Descriptions of three new Species of Earthworms. *T. c.* pp. 136-152, pls. vii & viii.
- . (2) Notes on two Acanthodriloid Earthworms from New Zealand. Q. J. Micr. Sci. xxxiii, pp. 289-312, pls. xv & xvi.
- . (3) A new English Genus of Aquatic *Oligochaeta* (*Sparganophilus*) belonging to the family *Rhinodrilidae*. *Op. cit.* xxxiv, pp. 155-179, pls. xix & xx. Abstr. in J. R. Micr. Soc. 1893, p. 39.
- . (4) An Earthworm from Ecuador (*Rhinodrilus ecuadoriensis*, n. sp.). Ann. N. H. (6) ix, pp. 237-246, pl. x.
- . (5) Note on the occurrence of a freshwater Nemertine in England. Nature, xlv, p. 611.
- A species of *Tetrastemma*.
- . (6) British Earthworms. *Op. cit.* xlvii, p. 102.
- Supporting HURST, criticising FRIEND (4).
- BERANECK, —. L'embryogenie de l'œil des Alciopides. Arch. Sci. Nat. xxviii, pp. 554 & 555.
- \*BERANGER-FERAND, —. (1) Sur l'augmentation de fréquence du Tænia en France depuis un demi-siècle. Bull. de l'Acad. de méd. (3) xxvii, p. 112, and in Sésm. Médic, 1892, No. 5.
- \*——. (2) Distribution géographique des Tænia de l'homme. Bull. de l'Acad. de méd. pp. 282-304.
- \*——. (3) De la ladrerie chez l'homme. Ann. Hyg. publ. 1892, pp. 481-517.
- BERGENDAL, D. (1) Några anmärkningar om Sveriges Triklader. Cefv. Ak. Förh. 1892, pp. 539-557.
- . (2) Kurzer Bericht über eine in Sommer 1890 unternommene zoologische Reise nach Nord Grönland. Bih. Sv. Ak. Handl. xvii, Afd. iv, No. 1. Given more fully as,
- . (3) Beiträge zur Fauna Grönlands. Act. Lund. 1891-2 (n.s.), iii (iv), 180 pp. 1. Zur Rotatorien Fauna Grönlands, pp. 11-180.
- \*——. (4) *Gasteroschiza tricantha*, Eine neue Gattung und Familie der Räderthiere. Bih. Sv. Ak. Förh. xvii. Also given under the title of "Ehrenberg's *Euchlanis Lynceus* wieder gefunden," in Act. Lund. 1891-2 (n.s.), iii (v), 2 pp.
- . (5) Om *Uteriporus vulgaris* och betydelsen af Uterus hos Trikladerna. Förh. Sk. Naturf. xiv, p. 494, and \*Sv. Ak. Handl. 1892, 1st part.
- \*——. (6) Om Land Planariers Anatomi. Sv. Ak. Handl. 1892.
- \*——. (7) Studien über Turbellarien. 1. Ueber die Vermehrung durch Quertheilung des *Bipalium kewense*, Moseley. *T. c.*

- [BERGENDAL, D.] (8) Einiges über den Uterus der Tricladen. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipzig: 1892, pp. 310-318, pl. xxxii.
- BERGH, R. S. Kurze Bemerkungen über Herrn Apáthy und die Hirudineen Embryologie. Zool. Anz. xv, pp. 57 & 58.
- BILFINGER, L. Ein Beitrag zur Rotatorienfauna Württembergs. JH. Ver. Württ. xlviii, pp. 107-124.
- BILLET, A. [See GIARD & BILLET.]
- BLANCHARD, R. (1) Description de la *Glossiphonia tessellata*, O. F. M. Mém. Soc. Zool. v, pp. 56-58, 2 woodcuts.
- . (2) Présence de la *Glossiphonia tessellata* au Chili; description complémentaire de cette Hirudinée. Act. Soc. Chili, ii, pp. 177-187, 2 woodcuts.
- . (3) Courtes notices sur les Hirudinées. Bull. Soc. Z. Fr. xvii.
- II. Sur la *Typhlobdella kovátsi*, Diesing, pp. 35-39, 4 woodcuts. From examination of type specimen, conclude = *Haemopsis sanguisuga*. III. Description de la *Nephelis atomaria*, Carena, pp. 165-172, 5 woodcuts. IV. Description de la *Glossiphonia marginata*, O.F.M., pp. 173-178, 2 woodcuts. V. Description de la *Glossiphonia sexoculata*, Bergm., pp. 178-182, 2 woodcuts. VI. Sur le *Branchellio punctatum*, Baird, pp. 222 & 223.
- . (4) Description de la *Xerobdella lecomtei*, v. Frauenf. Mém. Soc. Zool. v, pp. 539-553, 9 woodcuts.
- . (5) Notices sur les parasites de l'homme, 1<sup>re</sup> sér.; De l'existence et de la prédominance ancienne du *Tænia saginata* dans l'Europe occidentale. Mém. Soc. Biol. (9) iv, pp. 243-258.
- . (6) Sur la présence de la *Trocheta subviridis* en Ligurie, et description de cette Hirudinée. Atti Soc. Ligust. iii, pp. 407-435, 8 woodcuts.
- BLES, E. J. Notes on the Plankton observed at Plymouth during June, July, August, and September, 1892. J. Mar. Biol. Ass. (n.s.) ii, pp. 340-343.
- BLOCHMANN, F. (1) Ueber Sommer's sogenannte "plasmatische Längsgefäße" bei *Tænia saginata*, Göze, und *Tænia solium*, L. CB. Bakt. Parasit. xii, pp. 373-379, 3 woodcuts.
- . (2) Ueber die Entwicklung von *Cercaræum* aus *Helix hortensis* zum geschlechtsreifen *Distomum*. T. c. pp. 649-652.
- The *Distomum* is *D. caudatum* (alimentary canal of *Erinaceus*).
- . (3) Ueber die Anatomie und die verwandtschaftlichen Beziehungen der Brachiopoden. Arch. Ver. Mecklenb. xlv, 1892, pp. 37-50.
- Relationship to *Phoronis* emphasized.

BOLSJUS, R. P. H. (1) Sur les organes ciliés des Hirudinées. Ann. Soc. Brux. xv, C.R. p. 44.

— (2) Anatomie des organes segmentaires des Hirudinées d'eau douce, d'après les recherches cytologiques. *Op. cit.* xvi, Mém. pp. 1-70, pls. i & ii.

BOS, J. RITZEMA. (1) Thierische Schädlinge und Nützlinge für Ackerbau, Viehzucht, Wald- und Gartenbau; Lebensformen, Vorkommen, Einfluss und die Massregeln zu Vertilgung und Schutz. Berlin (Parcy): 1891, xvi + 876 pp., 477 figg. Reviewed J. R. Agric. Soc. iii, pp. 415-420.

200 pages devoted to Thread- and Eel-worms, Tape-worms, and Flukes; good index, and well arranged.

— (2) *Aphelenchus olesistus*, n. sp., een Nematode, schadelijk aan Begonia's en Varenen. Maandbl. Natuurw., 17th year, pp. 101-112, pl. vii.

— (3) L'anguillule de la Tige (*Tylenchus devastrix*, Kühn) et les maladies des plantes dues à ce Nematode. Arch. Mus. Teyl. (2) iii, pp. 545-588.

BOUTAN, L. Voyage dans la Mer Rouge. Rev. Biol. iv.

Three Polychæts and 1 Nemertine mentioned, but not identified, on p. 222.

BOVERI, —. Ueber die Entstehung des Gegensatzes zwischen den Geschlechtszellen und den somatischen Zellen bei *Ascaris megalocephala* nebst Bemerkungen zur Entwicklungsgeschichte der Nematoden. SB. Ges. Morph. viii, pp. 114-125, 5 figg.

BRANDES, G. (1) Zum feineren Bau der Trematoden. Z. wiss. Zool. iii, pp. 558-577, pl. xxii; also in Ber. Ges. Halle, 1891 (2), pp. 59-84, Abstr. in J. R. Micr. Soc. 1892, p. 372.

Criticised by BRAUN (3).

— (2) Revision der Monostomiden. CB. Bakt. Parasit. xii, pp. 504-511.

BRAUN, M. (1) Ueber *Distomum folium*, Olf. *Op. cit.* xi, pp. 461-463.

— (2) Ueber *Eurycælum sluiteri*, Br. T. c. pp. 727-729.

— (3) Ueber einige wenig bekannte resp. neue Trematoden. Verh. Deutsch. zool. Ges. 2te Jahresversamml. 1892, pp. 44-52.

— (4) Bronn's Klassen und Ordnungen des Thierreichs. Bd. iv. Würmer. Continuation, parts 18-27, pp. 562-816, pls. xviii-xxxi, containing the Trematodes, Digenea.

— (5) Verzeichniss von Eingeweidewürmern aus Mecklenburg. Arch. Ver. Mecklenb. xlv, 1891 (2), pp. 97-117.

BRUNOTTE, C. Deux stations nouvelles du *Phreoryctes menkeanus*, Hfmst. Rev. Biol. v, pp. 120-122.

BRYCE, D. (1) On the Macrotrachelous *Calidinidæ*. J. Quek. Club (2) v, pp. 15-23, 1 pl.  
4 new species.

——. (2) On some Moss-dwelling *Cathypnadae*, with descriptions of five new species. Sci. Goss. 1892, pp. 271-275, 11 figg.

BUCHANAN, F. Report on Occupation of the British Association Table in the M. B. A. Laboratory at Plymouth. Rep. Brit. Ass. Edinburgh, 1892, pp. 356-360.

BÜRGER, O. (1) Die Enden des excretorischen Apparates bei den Nemertinen. Z. wiss. Zool. liii, pp. 322-333, pl. xvi.

——. (2) Zur Kenntniss der Nemertinen des Golfes von Neapel. Vorläufige Mittheilung. Nachr. Ges. Götting. 1892, pp. 137-178.

BÜTSCHLI, O. Ueber den feineren Bau der contractilen Substanz der Muskelzellen von *Ascaris* nebst Bemerkungen über die Muskelzellen einiger anderer Würmer. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipsig: 1892, pp. 328-336, pl. xxxiv.

CADIOT, —. [See RAILLIET & CADIOT.]

CAHIER, —. Note sur les Œufs et l'Embryon du *Bilharzia hæmatoba*. C.R. Soc. Biol. pp. 570-576, 4 figg.

CALANDRUCCIO, S. Descrizione degli embrioni e delle larve della *Filaria recondita*, Grassi. Atti Acc. Gioen. (4) v, pp. 1-15, 17 woodcuts.

CALMAN, W. T. On certain new and rare Rotifers from Forfarshire. Ann. Scot. N. H. 1892, pp. 240-245, pl. viii.

CAMERANO, L. (1) Ricerche intorno al parassitismo ed allo sviluppo del *Gordius pustulosus*, Baird. Atti Acc. Tor. xxvii, pp. 598-607, 1 pl., and Boll. Mus. Zool. Tor. vii, No. 124, 5 pp.

——. (2) Intorno ad una species di *Gordius* (*G. aneus*, Villot) raccolta dal Sig. G. B. Anselmo in Venezuela, e intorno alle specie di questo genere fin ad ora discriette dell' America meridionale. Ann. Mus. Genov. (2) x, pp. 123-127, 1 fig.

——. (3) Viaggio di L. Fea in Birmania e regioni vicine, xxvii. Gordii. T. c. pp. 128-131, 2 figg.

——. (4) Descrizione di una nuova specie del genere *Gordius* di Palmeira (Paranà) raccolta dal Dott. G. Franco Grillo. T. c. pp. 965 & 966.

——. (5) Descrizione di una nuova specie del genere *Gordius* raccolta nell' isola Engano dall Dott. E. Modigliani. Op. cit. xii, pp. 539-541.

CAMUS, F. Note sur la présence de *Geophilus submarinus*, Gr., et de quelques autres animaux marins sur la côte de Préfaille près Pornie (Loire Inf.). Bull. Soc. Sci. Nat. Ouest France, ii, 1892.

*Syllis amica* and *Thalassema neptuni* mentioned, pp. 33 & 34.

\*CAPARINI, U. Nuove osservazione per servare all' istoria di alcuni parassiti. Com. 2<sup>a</sup>. Giorn. Fisiol. Patol. Pisa. Anno 23 (1891), pp. 271-279.

1. Tricocefali nel fegato di una bovina.

2. Cesticerchi embrionali attraversante il fegato di un majale.

CARSTEN, B. Trichinosis in the Netherlands. Trans. of 7th Internat. Congr. of Hyg. and Demogr., London, 1891 (2) sect. iii, pp. 56 & 57.

\*CATHE, J. T. De breede lintworm (*Bothriocephalus latus*) in Nederland inheemsch. Geneesk. cour. 1891, No. 45.

CERFONTAINE, P. Contribution à l'étude du système nerveux central du Lombric terrestre. Bull. Ac. Belg. (3) xxii, pp. 742-752, 2 pls.

CHARLES, R. H. A contribution on the life-history of the male *Filaria medinensis*, founded on the examination of specimens removed from the abdominal cavity of Man. Sci. Mem. vii, pp. 51-56, 1 pl.

CHATIN, J. (1) Contribution à l'étude des Elements epidermiques chez les Nematodes. C.R. Soc. Biol. iv, pp. 135 & 136.

\*——. (2) L'Anguillule de la Betterave (*Heterodera schachtii*). Bull. No. 5, 1891, of Rep. to Fr. Min. of Agric., 50 pp., 9 pls.

CHICHKOFF, G. D. Recherches sur les Dendrocoèles d'eau douce (Triclades). Arch. Biol. xii, pp. 435-568, pls. xv-xx.

CHOLODKOWSKY, N. Contributions à la Theorie du mésoderme et de la métamerie. Congr. Internat. Zool., 2nd Session, Moscow, 1892, pp. 58-65.

Divides the *Metazoa*, according to method of formation of or absence of coelom, into *Enterocæla* (including amongst "Vermes," the Chætognatha and Enteropneusta), *Genitocæla* (including the Annelides), *Acæla* (including the Platyhelminthes and the Mesozoa).

CHUN, C. Die Dissogonie. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipzig: 1892.

In a footnote, pp. 100 & 101, it is suggested that this process (reproduction at discontinuous periods in different stages of its development) may occur in Nereids.

\*COATS, J. A specimen of the prismatic variety of *Tania saginata*. Glasg. Med. Journ. 1891, pp. 103-107.

COLLIN, A. (1) Ueber die Regenwürmer der Umgegend von Berlin. SB. nat. Fr. 1892, pp. 115 & 116.

——. (2) Kleine Mittheilungen über Würmer (*Bipalium* and *Clepsine*). T. c. p. 164.

——. (3) Gephyreen gesammelt von Herrn Oberstabsarzt Dr. Sander auf der Reise S.M.S. "Prinz Adalbert." Arch. f. Nat. lviii, pp. 177-182, pl. xi.

- COLLIN, G. Sur la fréquence relative des diverses espèces de *Tenia*. Bull. Ac. Méd. xxvii, p. 176.
- COLLORADI, G. La *Bilharzia hæmatobia* dell' uomo ed i fenomeni morbosi cajonate da essa. Giorn. internaz. Sci. Med. Napoli, xiii (1891), pp. 851-864.
- CONDORELLI-FRANCAVIGLIA, M. (1) Sopra una rara anomalia della *Tenia solium*. Boll. Soc. Rom. Stud. Zool. i, pp. 31-35, 1 woodcut.
- . (2) Sopra una nuova specie di *Filaria* (*F. apapillocephala*). *T. c.* pp. 168-179.
- . (3) Sull' identità specifica dell' *Echinorhynchus globocaudatus*, Zeder, e dell' *Echinorhynchus tuba*, Rudolphi. *T. c.* pp. 224-232.
- . (4) A proposito di un grave caso di epistassi prodotta da puntura dell' *Hirudo sanguisuga*, Bergmann. *T. c.* pp. 233-241.
- . (5) Contributo allo studio della *Tenia litterata*. Lo Spallanzani, (2) xx (1891), pp. 384-393, 1 pl.
- \*CONSALVI, G. (1) Sopra una malattia nuova per le regioni meridionali d'Italia denominata Anchilostomiasi. 2nd Ed. Lanciano, tip. Carabba: 1891, 16mo, 10 pp.
- . (2) L'anchilostomiasi nelle province meridionali del continente italiano, Risposta alla lettera del Dr. F. Follo. *T. c.* 6 pp. Estr., Riv. Ital. Terap. Igiene, July (1891).
- CORI, C. J. Ueber Anomalien der Segmentierung bei Anneliden und deren Bedeutung für die Theorie der Metamerie. Z. wiss. Zool. liv, pp. 569-578, pl. xxv.
- COSMOVICI, L. C. (1) Quelques remarques sur les Rotifères. Le Nat. xiii, 1891, pp. 65 & 92.
- Distribution according to nature of water.
- . (2) Rotifères Organisation et Faune de la Roumanie. *Op. cit.* xiv, 1892, pp. 44, 45, 58, 59, 70, 71, & 83.
- . (3) Ce qu'il faut entendre par "système aquifère, organes segmentaires, organes excréteurs, nephridies." Congr. Internat. Zool. ii, Moscow, pp. 16-40.
- Review of the different terms used in different groups of animals, chiefly *Vermes*. [See KENNEL, J. v. (2).]
- CRETY, C. (1) Intorno la struttura delle ventose e di alcune organi tattili nei Distomi. Atti [Rend.] Acc. Rom. (5) i, pp. 21-26, 2 woodcuts. Translated into French in Arch. Ital. Biol. xviii, pp. 380-384.
- . (2) Intorno al nucleo vitellino dei Trematodi. Atti [Rend.] Acc. Rom. (5) i, pp. 92-97.
- CUÉNOT, L. Commensaux et Parasites des Echinodermes. Rev. Biol. v, Platyhelminthes, Rotifers, and Polychæts, pp. 8-16, pl. i.
- CUNNINGHAM, J. T. The Preservation of Marine Animals for Zoological purposes. Ess. Nat. vi [*Vermes*], pp. 124 & 125.

- CURTICE, C. Parasites of Domestic Animals. J. Comp. Med. Vet. Arch. 1892, pp. 223-226.
- DADAY, E. v. (1) Die geographische Verbreitung der im Meere lebenden Rotatorien. Math. Nat. Ber. Ung. ix (1891), pp. 55-66. Abstract and criticism in J. R. Micr. Soc. 1892, p. 488.
- (2) Revision der Asplanchna Arten und deren ungarländischen Repräsentanten. Math. Nat. Ber. Ung. ix (1891), pp. 69-89, pls. ii & iii. Abstract and criticism in J. R. Micr. Soc. 1892, p. 794.
- DADAY, JENŐ. A mesöségi tavak mikroszkopos faunája (Microscopic Fauna of the Fields). Math. term. Értés, x, pp. 132-136.
- DALLA-TORRE, K. W. v. Zoologische Mittheilungen: *Stephanoceros eichhornii*, Ehrb., in Lanser Moor. Ber. Naturw. med. Ver. Innsbrück. 1891, p. viii.
- DEMATEIS, —. Das Austreten der Ascariden bei Fieberbewegungen. CB. Bakt. Parasit. xi, pp. 653-660.
- DENDY, A. (1) On the Australian Land Nemertine (*Geonemertes australiensis*, n. sp.). P. R. Soc. Vict. iv, pp. 85-122, pls. vii-x.
- (2) Description of some Land Planarians from Queensland. T. c, pp. 123-129, pl. xi.
- \* — (3) Description of some Land Planarians from Tasmania. Rep. Australasian Ass. Advancement of Sci. 1892, Section D 6. Abstr. in J. R. Micr. Soc. 1893, p. 45.
- DESPEIGNES —. [See LORTET & DESPEIGNES.]
- DEUPSER, —. Zur Entwicklungsgeschichte der *Filaria papillosa*. Vorläufige Mittheilung. Zool. Anz. xv, pp. 129-131. Abstr. in CB. Bakt. Parasit. xi, p. 771, and in J. R. Micr. Soc. 1892, p. 371.
- \*DEWITZ, J. Die Eingeweidewürmer der Haussäugethiere. Leipzig (Parcy): 1892, 8vo, 180 pp., 141 figg.
- DIAMARE, V. Di un nuovo cestode del Gen. *Dipylidium*, Lt. Boll. Soc. Nat. Napoli (1) vi, 1892, pp. 46-48.
- EHLERS, E. (1) Die Gehörorgane der Arenicolen. Z. wiss. Zool. liii (Suppl.), pp. 217-285, pls. xi-xiv. Abstr. in J. R. Micr. Soc. 1892, p. 480.
- (2) Zur Kenntnis von *Arenicola marina*, L. Nachr. Ges. Götting. 1892, pp. 413-418.
- Deals with the young stages.
- \*EPSTEIN, A. Ueber die Uebertragung des menschlichen Spulwurms (*Ascaris lumbricoides*). Eine Klinisch experimentelle Untersuchung. JB. Kinderheilk. und Phys. Erziehung, xxxiii, 1892, p. 287.
- FAUVEL, A. La faune du Chan-toung. Rev. Quest. Sci. 1892, p. 492.
- FILIPPI, C. DE. Note preliminare sul sistema riproduttore della *Tænia botriocephalis*. Boll. Soc. Rom. Stud. Zool. i (1892), pp. 75-79, pl. i.

- FISCHER, W. Uebersicht der von Herrn Dr. F. Stuhlmann auf Sansibar und an der gegenüberliegenden Festlandes gesammelten Gephyreen. *JB. Hamb.* ix, pp. 79-89, 1 pl.
- FLOERICKE, C. Vorläufige Mittheilung über einige anscheinend neue Naidomorphen. *Zool. Anz.* xv, pp. 468-470.
- FOREL, F. A. *Ascaris inflexa* trouvé dans un œuf de poule. *Bull. Soc. Vaud.* xxviii, p. xxiv.
- Only this statement.
- FOWLER, G. H. The Morphology of *Rhabdopleura normani*, Allm. *Festschr. z. 70ten, Geburtstage R. Leuckarts*, pp. 293-297, pl. xxx; and Abstract in *P. R. Soc.* lii, pp. 132-134, 3 figg.
- FOWLER, —. A curious Parasite. *Ent.* xxv (1892), p. 247.
- Found in *Epinephele tithonus*; shown on p. 291 to be a *Gordius*.
- FRANCAVIGLIA. [See CONDORELLI-FRANCAVIGLIA.]
- \*FRANCIS, M. Liver Flukes. *Bull. Texas Agric. St.* xviii (1891), 9 pp., 6 figg.
- . [See also STILES (7).]
- FRANÇOIS, P. [See JOUBIN & FRANÇOIS.]
- FREAM, W. Trap-plants for Eelworms. *J. R. Agric. Soc.* (3) iii, pt. 1, pp. 173-176.
- FRENZEL, J. The Mesozoon *Salinella*. *Ann. N. H.* ix, pp. 79-84 & 109-111. Translations from German papers. [See *Zool. Rec.*, 1891, *Vermes*, p. 10, FRENZEL, 1 & 2.]
- FRIEND, H. (1) British Annelids. With especial reference to the Earthworms of Essex. *Ess. Nat.* v & vi (1891-92).
1. Introduction, Habits, Preserving, &c. Vol. v, pp. 193-196.
  2. Division into 3 genera. Terms for description. *T. c.* pp. 237-241.
  3. *Allurus tetraëdrus*, Eisen. Vol. vi, pp. 30-33.
  4. Genus *Lumbricus*, with 4 species. *T. c.* pp. 60-65.
  5. Genus *Allolobophora*, group *Lumbricoidea*. *T. c.* pp. 107-111.
  6. Genus *Allolobophora*, group *Mucida*. *T. c.* pp. 169-174.
  7. Genus *Allolobophora*, group *Dendrobæna*. *T. c.* pp. 185-190, 4 figg.
- . (2) Studies of British Tree- and Earthworms. *J. L. S. Zool.* xxiv, pp. 292-315.
- . (3) A rare British Earthworm. *Nature*, xlv, p. 365.
- L. eiseni*, Lev.
- . (4) New British Earthworms. *Op. cit.* xlvi, p. 621, 3 figg.
- Criticised by HURST & BENHAM (6).
- . (5) The Earthworms of Kent. *Field Club*, iii, pp. 24-27.
- . (6) The Earthworms of Northhants. *T. c.* pp. 83-85, 100-103.
- . (7) The Earthworms of Middlesex. *Sci. Goss.* pp. 193-196.

- [FRIEND, H.] (8) On Hybridity among Worms. Field Club, iii, pp. 147-151, and Naturalist, pp. 301-304.
- . (9) A new British Worm. Field Club, iii, pp. 167-169, and Sci. Goss. 1892, pp. 242 & 243.
- Allurus tetragonurus.*
- . (10) Worm-hunting in Sussex. Sci. Goss. pp. 122-124.
- . (11) New Yorkshire Earthworms; with an amended list of North British species. Naturalist, 1892, pp. 87-90.
- . (12) A new Yorkshire Earthworm. *T. c.* pp. 247-249.
- . (13) On a new species of Earthworm. P. R. Irish Ac. ii, pp. 402-410, 9 figg.
- He calls it *Allolobophora hibernica*, but in P.S. refers it to Rosa's *A. cantabrica*, found at Genoa.
- . (14) Curiosities of Worm Life. Sci. Goss. 1892, pp. 108 & 109, 7 figg., and p. 161, 2 figg.
- \*FRIIS, S. Om forekomsten af trichiner i Danmark. Tidskr. f. Sundhpfl. ii, p. 152.
- FRITSCH, A., & VAVRA, V. Vorläufige Bericht über die Fauna des Unter Pocernitzer und Gatterschlager Teiches. Zool. Anz. xv, p. 27.
- FUSSET, —. Permanencia en la Estación de Santander. An. Soc. Esp. xxi [*Vermes*], Actas, pp. 172 & 175.
- 2 Platyhelminthes, 6 Polychæts, 1 Phascolosoma
- GARSTANG, W. (1) On some new or rare marine animals recently discovered on the Coast of Devonshire. Rep. Tr. Devon. Ass. xxiv, "*Vermes*," pp. 381-383.
- . (2) Marine *Invertebrata* of Plymouth. J. Mar. Biol. Ass. ii, No. 4, Annelids, p. 335.
- GENERSICH, A. Majtályog esete. Feregpetek az epiköben. (A case of Liver abscess. Eggs of *Ascaris* in gall stone). Evkön. Erd. Muz. xvii, pp. 21-29. Translated into German, pp. 220-225.
- GENERSICH, G. A datok a májtályog koroktanához (Contribution to the aetiology of Liver abscess). *T. c.* pp. 8-20. German, pp. 213-219.
- GIARD, A. Sur la distribution géographique du *Photodrilus phosphoreus*, Dugès, et la taxonomie des Lumbriciens. C.R. Soc. Biol. iii, 1891, p. 252.
- GIARD, A., & BILLET, A. Sur quelques Trématodes parasites des bœufs du Tonkin (Note préliminaire). *Op. cit.* iv, pp. 613-616.
- GILES, G. M. J. (1) Some observations on the Life History of *Sclerostomum tetracanthum*, Diesing, and on *Schleratomiasis* in equine animals; in connection with a so-called outbreak of "Surra" at Shillong. Sci. Mem. vii, pp. 1-25, 3 pls.
1892. [VOL. XXIX.]

[GILES, G. M. J.] (2) On a new Sclerostome from the large intestine of Mules. (P.S. to (1).) *Sci. Mem.* vii, pp. 25-31, 1 pl.

— (3) On Nodular Disease of the intestine of Sheep. *T. c.* pp. 31-45, 1 pl.

— (4) A description of two new Nematodes found in Sheep. *T. c.* pp. 45-51, 1 pl.

GOODRICH, E. S. Note on a new Oligochæt (*Vermiculus pilosus*). *Zool. Anz.* xv, pp. 474-476, 2 figg.

\*GRAEFE, A. Extraktion zweier Cysticercen aus einem Auge. *Monatsbl. f. Augenheilk.*, xxx, p. 297.

GRAFF, L. v. (1) Ueber pelagische Polycladen. *Z. wiss. Zool.* lv, pp. 189-219, pls. vii-x. Abstr. (without figures) in *Verh. deutsch. Zool. Ges. 2ter Jhrg*, 1892, pp. 117-121; also Abstr. in *J. R. Micr. Soc.* 1893, pp. 190 & 191.

— (2) *Othelosoma symondsii*, Gray. *Zool. Anz.* xv, pp. 7-9.

— (3) Ueber *Haplodiscus piliger*, Weldon. *T. c.* pp. 6 & 7.

— (4) Sur une planaire de la mer des Sargasses (*Stylochoplana sargassicola*, Mertens). *Bull. Soc. Z. Fr.* xvii, pp. 146 & 147.

GRASSI, G., & ROVELLI, G. Ricerche embriologiche sui Cestodi. *Atti Acc. Gioen.* (4) iv, (lxviii), Mem. ii, 108 pp., 4 pls.

GREENWOOD, M. On retractile cilia in the intestine of *Lumbricus terrestris*. *J. Physiol.* xiii, pp. 239-259, pl. ix.

\*GRIFFITHS, A. B. (1) The physiology of the *Invertebrata*. London: Reeve & Co., 8vo, xvi + 477 pp.  
Circulation of *Lumbricus* dealt with.

— (2) On the blood of the *Invertebrata*. *P. R. Soc. Edinb.* xix, Annelids, pp. 119-123.

— (3) L'hermérythrine, pigment respiratoire contenu dans le sang de certains Vers. *C.R.* cxv, pp. 669 & 670.

GUERNE, J. DE. (1) Sur la dissémination des Hirudinées par les Palmipèdes. *C.R. Soc. Biol.* iv, pp. 92-95; also in *Ann. N. H.* x, pp. 117-120.

— (2) L'histoire des Némertiens d'eau douce. Leur distribution géographique et leur origine. *C.R. Soc. Biol.* iv, pp. 360-364; also in *Ann. N. H.* x, pp. 197-200.

Answer to DU PLESSIS (1).

GUERNE, J. DE, & RICHARD, J. Sur la faune de l'eau douce l'Islande. *C.R.* cxiv, pp. 310-313; *Bull. Soc. Z. Fr.* xvii, pp. 78-89; *Ann. N. H.* x, No. 58.

2 *Rotifers* mentioned.

- HALLEZ, P. (1) Une loi embryogénique des *Rhabdocœlides* et des *Tricladés*. C.R. cxiv, pp. 1033-1035. Abstr. in J. R. Micr. Soc. 1892, p. 484.
- (2) Sur l'origine vraisemblablement tératologique de deux espèces de *Tricladés*. C.R. cxiv, pp. 1125-1128. Abstr. in J. R. Micr. Soc. 1892, p. 485.
- (3) Catalogue des Turbellariés (*Rhabdocœlides*, *Tricladés*, et *Polycladés*) du Nord de la France et de la côte Boulonnaise recoltés jusqu'à ce jour. Rev. Biol. iv & v [continuation from ii], 12 figg.
- Supplement to list of *Rhabdocœls*; classification of *Tricladés* and their affinities with the *Alloiocœls*; Laws of Morphogeny of the Turbellarians, iv, pp. 301-326.
- Tricladés*:—Tribe *Maricola*, iv, pp. 338-350. Tribe *Paludicola*, pp. 425-456. Tribe *Terricola*, v, pp. 92-107.
- (4) Classification des *Tricladés* (Note préliminaire). Bull. Soc. Z. Fr. xvii, pp. 106-109. Abstr. in J. R. Micr. Soc. 1893, p. 45.
- HAMANN, O. (1) Zur Entstehung des Exkretionsorganes, der Seitenlinien und der Leibeshöhle der Nematoden. CB. Bakt. Parasit. xi, p. 501-503. Abstr. in J. R. Micr. Soc. 1892, p. 482.
- (2) Die Nemathelminthen. I. Monographie der *Acanthocephalen*. Jen. Z. Nat. xxv (1891), 119 pp.
- See KAISER (1).
- (3) Das System der *Acanthocephalen*. Zool. Anz. xv, pp. 195-197.
- \*HASSALL, A., & STILES, C. W. *Strongylus rubidus*, a new species of Nematode parasitic in Pigs. J. Comp. Med. Vet. Arch. Apr. 1892, 3 pp., 3 figg.
- HASWELL, W. A. (1) Observations on the *Chlorhæmidæ*, with special reference to certain Australian Forms. P. Linn. Soc. N.S.W. vi (1891), pp. 329-356, pls. xxvi-xxviii. Abstr. in J. R. Micr. Soc. 1892, p. 611.
- (2) On the Excretory System of *Temnocephala*. Zool. Anz. xv, pp. 149-151. Abstr. in J. R. Micr. Soc. 1892, p. 486.
- (3) On the Systematic Position and Relationships of the *Temnocephalæ*. Abh. Ges. Halle, xvii, pp. 455-460.
- (4) Jottings from the Biological Laboratory of Sydney University. P. Linn. Soc. N.S.W. vii.
- No. 17. Three Zoological Novelties, pp. 340-342:—
- I. The occurrence of a second species of *Phoronis* in Port Jackson.
  - II. An *Alloiocœle* Turbellarian inhabiting the underground waters of Canterbury, N.Z.
  - III. A new genus of *Temnocephalæ* (= *Actinodactylus*). A detailed description of this genus in (5) the Macleay Memorial Volume is promised.

- \*[HASWELL, W. A.] (5) A Monograph of the *Temnocephaleæ*. Macleay Memorial Vol. of P. Linn. Soc. N.S.W., pt. 1, 1892.
- HATSCHEK, B. System der Anneliden, ein vorläufige Bericht. *Lotos*, xiii, "1893" (1892), pp. 123-126.
- HENKING, H. Darstellung des Darmkanals von *Hirudo*. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipzig: 1892, pp. 319-327, pl. xxxiii.
- HERRING, E. Zur Kenntniss der Alciopiden von Messina. SB. Ak. Wien, pp. 713-768, 6 pls.
- HESSE, R. Ueber das Nervensystem von *Ascaris megaloccephala*. Z. wiss. Zool. liv, pp. 548-568, pls. xxiii & xxiv. Abstr. in J. R. Micr. Soc. 1892, p. 792.
- \*HILLIER, E. A Guinea Worm in the Tongue. Ind. Med. Rec. 1892, p. 79.
- HILLIGER, J. C. Weitere Mittheilung über leuchtende Würmer und Larven. *Helios*, 9ter Jhrg. (1892), p. [84].
- HOOD, J. (1) *Floscularia quadrilobata*, n. sp. Int. J. Micr. (3) ii, pp. 26-28, pls. iii & iv.
- . (2) *Floscularia gosseii*: a new Rotifer. *T. c.* pp. 73-78, pls. vi & vii.
- HORNELL, J. (1) Report on the Polychætatus Annelids of the L. M. B. C. District. Fauna of Liverpool Bay, Rep. iii (1892), pp. 126-171, pls. xiii-xv.
- . (2) A Strange Commensalism—Sponge and Annelid. *Nature*, xlvii, p. 78.
- Leucodore coeca*, Oerst., in *Microcionia plumosa*.
- HORST, R. Earthworms from the Malay Archipelago. Zool. Ergebn. einer Reise in Niederländisch Ost-Indien (Ed., Max Weber), iii (?) (1892), pp. 28-77, pls. ii-iv. Abstr. in J. R. Micr. Soc. 1893, p. 38.
- \*HUBER, J. C. (1) Bibliographie der klinischen Helminthologie. Heft 3 & 4. Die Darmcestoden der Menschen. München (Lehmann): 1892, 8vo, pp. 65-150.
- . (2) Ein Fall von *Echinococcus multilocularis* der Gallenblase. Deutsch. Arch. Klin. Med. xlviii, p. 432.
- HUBRECHT, A. A. W. The Nephridiopores in the Earthworm. Tijdschr. Nederl. Dierk. Ver. iii, pp. 226-234, pl. xii.
- \*HUET, —. Une nouvelle Cercarie (*C. pectinata*) chez *Donax anatinum*. J. Anat. Phys. norm. path. xxvii, p. 162.
- HURST, C. H. On a "Supposed New Species of Earthworm," and on Nomenclature of Earthworms. *Nature*, xlvii, p. 31.
- Criticism of FRIEND (4).

- IMHOF, O. E. (1) Beitrag zur Kenntniss der Lebensverhältnisse der Rotatorien. Ueber marine, brackische, und euryhyaline Rotatorien. Biol. Centralbl. xii, pp. 560-566.
- . (2) Ueber die Lebensverhältnisse zugefrorener Seen. MT. Aargau. nat. Ges. vi.  
3 Rotifers (gen. *Anuraea*) mentioned, p. 56.
- . (3) Beiträge zur Fauna der Schweiz; Thierwelt der stehende Gewässer. Die Rotatorien. T. c. pp. 93-110.
- . (4) Die zusammensetzung der pelagischen Fauna der Susswasserbecken. Biol. Centralbl. xii, Rotifers, pp. 176-178 & 203.
- JÄGERSKIÖLD, L. A. Zwei der *Euchlanis lynceus*, Ehrenberg, verwandte neue Rotatorien. Zool. Anz. xv, pp. 447-449, 2 figg.
- JAMMES, L. (1) Contributions à l'étude de la couche sous-cuticulaire des Nématodes et particulièrement du genre *Ascaris*. Ann. Sci. Nat. 59<sup>e</sup> année (7) Zool. xiii, pp. 321-342, pl. ix.
- . Les premières phases du développement de certains vers nématodes. C.R. cxiv, pp. 1555-1557. Critical Abstr. in J. R. Micr. Soc. 1892, p. 613.
- \*JANSON, J. L., & TOKISHIGE, H. *Filaria immitis* und andere bei Hunden in Japan vorkommende Parasiten. MT. Ges. Ostasien's, v, pp. 349-360, 2 pls.
- JOUBIN, L. Quelques indications sur la recherche et la préparation des Némertes. Act. Soc. Chili, ii, pp. 268-270.
- JOUBIN, L., & FRANÇOIS, P. Note sur quelques Némertes de Nomea. Rev. Biol. iv, pp. 161-172, pl. vi.  
4 new species.
- JOURDAIN, É. (1) Étude sur les épithéliums sensitifs de quelques vers annelés. Ann. Sci. Nat. (7) xiii, pp. 227-258. Abstr. in J. R. Micr. Soc. 1892, p. 788.
- . (2) Les Corps jaunes des Echinodermes et des Géphyriens inermes. C.R. Ass. Fr. Sci. Marseilles, 1891 (2), pt. i, p. 240; pt. ii, pp. 537 & 538.
- . (3) De la valeur du mot endothelium en anatomie à propos des cellules à cils vibratiles de la cavité générale des Sipunculien. Ann. Fac. Sci. Marseille, ii (1892), pp. 43-48, 2 figg. Also in C.R. Soc. Biol. iv, pp. 27-30, where criticised by MALASSEZ, p. 31.
- JOURDAIN, M. S. Sur l'embryogénie des *Sagitta*. C.R. cxiv, pp. 28 & 29. Also in Ann. N. H. ix, pp. 415 & 416.
- KAFKA, J. Untersuchungen über die Fauna der Gewässer Böhmens. II. Die Fauna der Böhmischen Teiche. Arch. naturw. Landesforsch. Böhmen, viii (2) pp. 1-115.  
Rotifers, p. 112; Turbellarians, Leeches, Chaetopods, p. 113.

KAISER, J. (1) Die Acanthocephalen und ihre Entwicklung. Bibl. Zool. Heft vii, 1891-93.

An important monograph on the family. In an appendix some remarks are made on Hamann's Monograph [see HAMANN (2)]. The two authors appear to differ in some important points.

— (2) Die Nephridien der Acanthocephalen. CB. Bakt. Parasit. xi, pp. 44-49. Abstr. in J. R. Micr. Soc. 1892, p. 371.

KALLSTENIUS, E. Eine neue Art der Oligochætengattung *Amphichæta*, Tauber. Biol. Fören. iv, pp. 42-55, 5 figg.

KELLICOTT, —. Rotifer Notes. Am. Micr. J. xiii, p. 12.

KENNEL, V. J. (1) Die Insel Trinidad: Ueber die Ableitung der Vertebratenaugen von den Augen der Anneliden [see Zool. Rec. 1891, KENNEL (1)]. SB. Ges. Dorp. ix (3) 1891 (2).

— (2) Réponses à Questions proposés par M. le Prof. L. Cosmovici. 2. Fondement naturel d'un système du type de vers. 3. Uniformité de la terminologie des organes sécrétoires (? excreteures). Congr. Internat. Zool., Sess. 2, Moscow, pp. 71-73.

KESWAL, —. A Tubicolar Annelide. J. Bomb. N. H. Soc. vii (1892), pp. 114 & 115.

Short and imperfect description, asking for identification.

KIEFFER, J. J. Ueber eine in Gallmücken parasitisch lebende *Anguillula*. Berl. Ent. Zeit. xxxvi, p. 26, 1 fig.

Living in large numbers in the larva of *Asynapta citrina*, a Cecidomyid fly.

\*KINYOUN, J. J. *Echinococcus hominis* of the kidneys, liver, and bladder. Ann. Rep. Mar. Hosp. Serv. 1891, pp. 147-149.

\*KLAPHAKE, J. Fütterungsversuche mit amerikanischen Trichinen. Z. f. Fleisch u. Milch Hyg. 1892, pp. 152 & 153.

KNİPOVİCHA, H. Otchet ob ekskursii na Solovetzkī biologhicheskuyu stantziyu lyetom 1890 ghohda. (Report on a Biological Excursion to Solovetzkī.) Trudui St. Petersburg Est. xxii, 1 (1891).

*Nemertines*, p. 25; *Polychæts*, pp. 25-27; *Priapulids*, pp. 24 & 40; *Balanoglossus*, pp. 24, 35, & 40. (In Russian.)

KOEHLER, —. Les conditions d'existence des organismes pélagiques. Rev. gén. Sci. 3<sup>e</sup> année, pp. 76-86, figg.

KOJEVNIKOV, G. La Faune de la mer Baltique orientale et les problèmes des explorations prochaines de cette faune. Congr. Internat. Zool., Sess. 2, Moscow, 1892 (3).

*Vermes*, pp. 141-145.

KRAEMER, A. (1) Ueber den innern Bau der Taenien der Süßwasserfische (Vorläufige Mittheilung). Zool. Anz. xv, pp. 14-18. [See (2).]

— (2) Beiträge zur Anatomie und Histologie der Cestoden der Süßwasserfische. Z. wiss. Zool. liii, pp. 647-722, pls. xxvii & xxviii. Abstr. in J. R. Micr. Soc. 1892, p. 373.

- KULAGIN, N. Ueber einige in europäischen Russland und in Siberien vorkommende Arten von Regenwürmern. *Mél. biol.* xiii, 1 (1891), pp. 87-96.
- LABBÉ, A. Note sur un nouveau parasite du sang (*Trypanomonas danelevskyi*). *Bull. Soc. Z. Fr.* xvi (1891), pp. 229-231.  
Blood of Leeches used as cultivating medium for this and other *Protozoa*.
- LACAZE-DUTHIERS, H. DE. Sur la faune de Banyuls-sur-Mer (Laboratoire Arago). *Arch. Z. expér.* (2) x, N. & R., p. xiv.
- LANG, A. Ueber die Cercaria von *Amphistomum subclavatum*. *Ber. Ges. Freiburg*, vi, pp. 81-89.
- LANGERHANS, —. Ueber regressive Veränderung der Trichinen in ihrer Kapseln. *Virchow's Arch.* cxxx, p. 205.
- LEBRUN, H. Les centrosomes dans l'œuf de l'*Ascaris megalocephala*. *Anat. Anz.* vii, pp. 627 & 628.
- LENHOSSÉK, M. V. (1) Ursprung, Verlauf und Endigung der sensibelen Nervenfasern bei *Lumbricus*. *Arch. mikr. Anat.* xxxix, pp. 102-136, pl. v.  
— (2) Die intraepidermalen Blutgefässe in der Haut des Regenwurmes. *Verh. Ges. Basel*, x, pp. 84-91.
- LEUCKART, R. (1) Ueber den grossen americanischen Leberegel. *CB. Bakt. Parasit*, xi, pp. 797-799.  
— (2) Ueber die Speicheldrüsen der Hirudineen. *Ber. Sächs. Ges.* vi (1892), pp. 556-558.
- LEVANDER, K. M. (1) Eine neue *Pedalion*-Art. *Zool. Anz.* xv, pp. 402-404.  
— (2) Mikrofaunistiska anteckningar. *Med. Soc. Fenn.* xvii (1890-92), pp. 129-143.
- LEWIS, —. List of Rotifers found in ponds near Ealing. *Rep. Ealing Micr. N. H. Soc.* xv, p. xiv.
- \*LIEBE, K. TH. Zur Naturgeschichte der Rohrdommel. *Ornith. Monatschr. d. Deutsch. Ver. Schutz. Vogelwelt.* xvii, No. 12 [p. 323 show Leeches and Earthworms swallowed whole, alive].
- LINDENFELD & PIETRUSZYNSKI. [See NUSBAUM (2).]
- LINSTOW, VON. (1) Ueber *Filaria bancrofti*, Cobbold. *CB. Bakt. Parasit.* xii, pp. 88-92, 6 figg.  
— (2) Beobachtungen an Vogeltänien. *T. c.* pp. 501-504, 3 figg.  
— (3) Beobachtungen an Helminthenlarven. *Arch. mikr. Anat.* xxxix, pp. 325-342, pl. xv.  
— (4) Helminthen von Süd-Georgien. Nach der Ausbeute der Deutschen Expedition von 1882-83. *JB. Hamb. Anst.* ix, pp. 59-77, 3 pls.

- [LINSTOW, VON.] (5) Ueber *Mermis nigrescens*, Duj. Arch. mikr. Anat. xl, pp. 498-511, pls. xxviii & xxix.
- LINTON, E. (1) Notes on Avian *Entozoa*. P. U. S. Nat. Mus. xv (1892), pp. 87-113, pls. iv-viii.
- Unfavourably reviewed and summarized by Stiles in CB. Bakt. Parasit. xiii (1893), p. 497, and in Am. Nat. xxvi, pp. 1038-1040.
- . (2) Notice of Trematode Parasites in the Cray-fish. Am. Nat. xxvi, p. 69.
- . (3) Notes on a Nematode Parasite from the Chipping Sparrow (*Spizilla socialis*). T. c. pp. 705-707, 5 figg.
- . (4) Notes on the *Entozoa* of Marine Fishes, with descriptions of New Species. Pt. III. *Acanthocephala*. Rep. U. S. Fish. Comm. pt. xvi, 1888 (1892), pp. 523-542, pls. liii-lx.
- . (5) On the anatomy of *Thysanocephalum crispum*, Linton, a Parasite of the Tiger Shark. T. c. pp. 543-556, pls. lxi-lxvii.
- \*LÖNNBERG, E. (1) *Distomum goliath*, v. Ben. Verh. Biol. Ver. Stockholm, iii (1891), 14 pp., 1 pl.
- . (2) Einige Experimente, Cestoden künstlich lebend zu erhalten. CB. Bakt. Parasit. xi, pp. 89-92.
- . (3) Ueber das Vorkommen des breiten Bandwurmes in Schweden. T. c. pp. 189-192.
- LOOSS, A. (1) Ueber *Amphistomum subclavatum*, Rud., und seine Entwicklung. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipsig (1892), pp. 147-169, pls. xix & xx.
- . (2) Schmarotzerthum in der Thierwelt. Zool. Vorträge hrsg. v. W. Marshall. Leipsig (R. Freese): 1892, 8vo, Heft 9 & 10, 180 pp.
- LORD, J. E. Notes on the genus *Distyla*, Class *Rotifera*. Sci. Goss. 1892, pp. 15 & 16.
- LORTET & DESPEIGNES. Vers de terre et Tuberculose. C.R. cxv, p. 66, and Sem. Médic. 1892, No. 5.
- LOZ, J. Les Vers de terre agents de fertilisation du sol. Rev. Sci. Nat. appl. 38<sup>e</sup> ann. (1891), p. 45.
- LUCET, A. [See RAILLET, A., & LUCET, A.]
- LUTZ, A. Zur Lebensgeschichte des *Distoma hepaticum*. CB. Bakt. Parasit. xi, pp. 783-796, 1 fig.
- MCINTOSH, W. C. Notes from St. Andrews Marine Laboratory, No. xiii, Ann. N. H. x [*Vermes*], pp. 103-107, pl. viii, figg. 1-4.
- MAGALHÃES, P. S. DE. (1) Notes d'helminthologie Brésilienne. Bull. Soc. Z. Fr. xvii.
1. *Taenia cuneata*, v. Linst., pp. 145 & 146.
  2. *Heterakis brasiliensis*, n. sp., of the domestic fowl, pp. 219-221, 1 fig.

- [MAGALHÃES, P. S. DE.] (2) Die *Filaria bankrofti*, Cobbold, und die *Filaria immitis*, Leidy. CB. Bakt. Parasit. xii, pp. 511-514, 4 figg.
- MAIER, B. L. Beiträge zur Kenntniss des Hirudineen Auges. Zool. Jahrb. Abth. f. Anat. v, pp. 552-580, pl. xxxvii.
- MAN, J. G. DE. Ueber eine neue in Gallen einer Meeresalge lebende Art der Gattung *Tylenchus*, Bast. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipzig (Engelmann): 1892, pp. 121-126, pl. xvi.
- \*MANGOLD. —. Ueber den multiloculären *Echinococcus* und seine *Tänie*. Berl. klin. Wochenschr. 1892, Nos. 2 & 3. Abstr. in CB. Bakt. Parasit. xi, p. 738, and J. R. Micr. Soc. 1892, p. 619.
- MANSON, P. The Geographical Distribution, Pathological Relations, and Life History of *Filaria sanguinis hominis diurna*, and of *F. sang. hom. perstans* in connection with preventive medicine. Trans. of the 7th Intern. Congr. Hyg. Demog. London, 1891 (2) sect. i, pp. 79-97, 3 figg.
- MARCIALIS, E. Saggio di un Catalogo metodico dei principali e più comuni animali invertebrati della Sardegna. Boll. Soc. Rom. Stud. Zool. i, pp. 246-282; *Vermes*, pp. 249-251.
- MARENZELLER, E. V. (1) Die Polychäten der Bremer Expedition nach Ostspitzbergen im Jahre 1889. Zool. Jahrb. Abth. Syst. vi, Heft 2, pp. 397-434, pl. xix.
- (2) Sur une Polynoïde pélagique (*Nectochaeta grimaldii*, n. g. & sp.) recueillie par l'Hirondelle en 1888. Bull. Soc. Z. Fr. xvii, pp. 183-185.
- MARK, E. L. *Polychærus caudatus*, n. g. & sp. of *Turbellarians*. (*Acala*, fam. *Aphanostomida*). Festschr. z. Geburtstage R. Leuckarts. Leipzig: 1892, pp. 298-309, pl. xxxi.
- \*MASSALONGO, C. Sul elmintocecidio (*Tylenchus invalis*) dell' Edelweiss. N. Giorn. Bot. Ital. Firenze. xxiii, 2 (1891), p. 375.
- MATZDORFF, C. (1) Ursprung des leuchtenden Regenwurmes (*Photodrilus phosphoreus*). Helios, ix (1891), p. [58].
- (2) Ueber schmarotzende Protozoen. Op. cit. x (1892), pp. 11 & 12.
- Rhabdostyla arenicole* on the branchiæ of *Arenicola*.
- (3) Commensalisten und Parasiten von Echinodermen. T. c. p. 91. Nematode, Rotifer, Platyhelminths, and a Polychæt.
- \*METER, S. D. VAN. The *Filaria immitis*. Intern. med. Mag. 1892, i, pp. 1060-1064.
- MICHAELSON, W. (1) Terricolen der Berliner Zoologischen Sammlung (ii). Arch. f. Nat. lviii (ii), pp. 209-261, pl. xiii, and 5 woodcuts.
- (2) Die Lumbriciden Mecklenburgs. Arch. Ver. Mecklenb. xlv, 1890 (1), pp. 48-54.

- [MICHAELSON, W.] (3) Beschreibung der von Herrn Dr. Fr. Stuhlmann am Victoria Nyanza gesammelten Terricolen. JB. Hamb. Anst. ix, (2), 1891 (92), pp. 29-42, 1 pl.
- . (4) Polychaeten von Ceylon. *T. c.* pp. 91-113, 1 pl.
- MONIEZ, R. (1) Notes sur les Helminthes (continued). *Rev. Biol.* iv. XI. La *Gymnorhynchus reptans* et sa migration, pp. 150 & 151.
- XII. Sur un Tétrarhynque nouveau provenant des campagnes de l'Hiron-delle (*Dibothriorhynchus monticellii*), p. 279.
- MONTICELLI, F. S. (1) Ricerche sulla spermatogenesi nei Trematodi. *Month. Int. J. Anat. Hist.* ix, pp. 112-118 & 121-149, pls. viii & ix.
- . (2) Sul nucleo vitellino delle uova dei Trematodi. *Boll. Soc. Nat. Napoli* (1) vi, pp. 5-8 (Estr.).
- . (3) Studii sui Trematodi endoparassiti. Sul genere *Notocotyle*. *T. c.* pp. 26-46, pl. i.
- . (4) Studii sui Trematodi endoparassiti. Dei *Monostomum* del Box Salpa. *Atti Acc. Tor.* xxvii, pp. 514-534.
- . (5) Studii sui Trematodi endoparassiti. Dei *Monostomum cymbium*, Diesing, Contribuzione allo studio dei *Monostomidae*. *Mem. Acc. Tor.* 2<sup>e</sup> ser. xlii, pp. 683-727, 1 pl.
- . (6) *Cotylogaster michaelis*, n. g. & sp. *Festschr. z. 70ten Geburtstage R. Leuckarts.* Leipsig (Engelmann): 1892, pp. 168-214, pls. xxi & xxii.
- . (7) Nota intorno a due forme di Cestodi. *Boll. Mus. Zool. Tor.* vii, No. 127, 9 pp., 1 pl.
- . (8) Sulla cosiddetta subcuticola dei Cestodi. *Rend. Acc. Nap.* (2) vi, anno xxxi, pp. 158-166.
- . (9) Appunti sui Cestodaria. *Atti Acc. Napoli* (2) v, No. 6, pp. 67-78, 4 figg.
- . (10) Sul genere *Bothrimonus*, Duvernoy, e proposte per una classificazione dei Cestodi. *Monit. Zool. Ital.* iii, pp. 100-108.
- MORGAN, T. H. (1) *Balanoglossus* and *Tornaria* of New England. *Zool. Anz.* xv, pp. 456 & 457.
- . (2) Growth and Metamorphosis of *Tornaria*. *J. Morph.* v, pp. 407-450, pls. xxiv-xxviii.
- . (3) Spiral Modification of Metamerisation. *Op. cit.* vii, pp. 245-251, 3 figg.
- MOUSSU, —. [See RAILLIET & MOUSSU.]
- \*MUDD, H. H. *Echinococcus multilocularis* of the brain. *Am. J. Med. Sci.* 1892, pp. 412-422.
- MÜLLER, F. Die Begattung der Clepsinen. *Zool. Jahrb. Abth. f. Syst.* vi, p. 338.
- Correction of a statement by WHITMAN.

NABIAS, B. DE, & SABRAZÉS, J. (1) Sur les Embryons de filaire du sang de l'homme. Sem. Médic. 1892, p. 212; CB. Bakt. Parasit. xii, p. 171.

— (2) Sur les Embryons de la Filaire du sang chez l'homme. C.R. Soc. Biol. iv, pp. 455-461, 1 fig.

NEUMANN, —. A Treatise on the Parasites and Parasitic Diseases of the Domesticated Animals. English Translation (and Annotation) by G. Flemming, C.B. London (Balliere, Tindall, & Cox): 1892, xxiii + 800 pp., 365 figg.; Review J. Agric. Soc. (3) iii, pp. 397-403.

NIEL, E. Quelques mots sur les Anguilles. Bull. Soc. Rouen (3) xxvii (1891), pp. 73-75.

NUSBAUM, J. (1) Poglądy na stosunki genetyczne pomiędzy Thankowcami i Pierwotniakami z powodu odkrycia Salinelli (Frenzel). Kosmos, Lemberg, xvii (1892), pp. 233-264, 11 figg.

Discussion of relationship between *Meta*- and *Protozoa*, as affected by the discovery of *Salinella*. Review of all the theories previously advanced. (In Polish.)

— (2) Zur Kenntnis der Wurmfauuna und Crustaceenfauuna Polens. Biol. Centralbl. xii, pp. 54-57. I. Zur Fauuna der Hirudineen; II. der Rhabdocelen (11 species); III. der Lumbriciden (10 species).

Abstract from two papers by H. LINDENFELD & J. PIETRUSZYNSKI (in Polish) in the Pamiętnik Fizyograficzny, Warsaw: ix (1889), 12 pp., 1 pl. (Leeches); x (1890), 42 pp., 1 coloured pl. & 13 woodcuts. Further details promised by the authors in the same journal.

\*OSTERTAG, —. Vermögen Darmtrichinen und wandernde Trichinen auf einen neuen Wirt überzugehen? Z. f. Fleisch- u. Milchhyg. 1892-93, pp. 45-50.

OTT, H. N. A Study of *Stenostoma leucops*, O. Schm. J. Morph. vii, pp. 263-304, pls. xiv-xvii.

Preliminary account in Zool. Anz. xv, pp. 7-9.

PARKER, T. J. Exhibition of *Branchellion* (? n. sp.), occurring abundantly on *Raia nasuta*, and of a *Dujardinia* from Port Chalmers. Tr. N. Z. Inst. xxiv (Proceedings), p. 714.

PARONA, C. (1) Elmintologia italiana (Continuation). Boll. scient. xiii, pp. 124-128, xiv, pp. 92-96, 125-127.

Bibliography.

— (2) Di una nuova specie di *Echinorhynchus* (*E. novella*) parassita di una Chirottero di Porto-Rico. Ann. Mus. Genov. (2) x, pp. 396-398, 4 figg.

PARONA, C., & PERUGIA, A. (1) Contribuzione per una monografia del genere *Microcotyle*. T. c. Res Ligusticæ, xiv, pp. 173-220, pls. iii-v.

— (2) Note sopra Trematodi ectoparassiti. Op. cit. (2) xii, Res Ligusticæ, xvii, pp. 86-102, pls. ii & iii.

- PARSONS, F. A. Notes on Two Rotifers found in Epping Forest. J. Quek. Club, iv, pp. 378-380, pl. xxv, and Am. Micr. J. xiii, pp. 277 & 278.
- PÉRIASLAVZEFF, S. Dopolneniya k Faunye Chernagliu morya. Trudui Kharkoff Univ. xxv (1891), pp. 235-274, pls. vii & viii.
- A Supplement to the Fauna of the Black Sea. Deals chiefly with Polychæts. (In Russian.)
- PERRONCITO, E. Maladies infectieuses des Animaux qui peuvent être transmises à l'Homme, et reciproquement. Trans. of the 7th Internat. Congr. Hyg. Demogr. London, 1891 (2), Sectn. iii, pp. 189-192.
- Tenia mediocanellata* and *Ankylostoma duodenalis* (larvæ).
- PERUGIA, A. [See PARONA & PERUGIA.]
- PIETRUSZYNSKI, J. [See NUSBAUM (2).]
- PLESSIS, G. DU. (1) Sur les Némertiens du lac de Genève. Zool. Anz. xv, pp. 64-66.
- Criticized by VAILLANT and by DE GUERNE (2).
- . (2) Note sur *Tetrastemma lacustris*, espèce nouvelle de Némertien d'eau douce. Bull. Soc. Vaud. (3) xxviii, pp. 43-48, pl. iv.
- POUCHET, G. Sur la faune pélagique du Dyrefjord (Islande). C.R. cxiv, pp. 191-193.
- PRESTON, W. N. Mounting *Trichinæ*. Am. Micr. J. xiii, p. 197.
- PROUHO, H. Sur deux Myzostomes parasites de l'*Antedon phalangium* (Müller). C.R. cxv, pp. 864-849.
- \*PUKY, A. Twenty cases of *Echinococcus*. (In Hungarian.) Magyar orvosiarch. 1892, Nos. 3 & 4.
- RAILLIET, A. (1) Les parasites transmissibles des Animaux à l'Homme, envisagés spécialement au point de vue de la Prophylaxie. Trans. of the 7th Internat. Congr. Hyg. Demogr., Sectn. iii, pp. 57-87.
- . (2) Notices parasitologiques. Bull. Soc. Z. Fr. xvii, pp. 110-117 :—
- I. *Cysticercus pisiformis* à six ventouses, p. 110.
  - II. Ténia dé de coloration ardoisée recueilli chez un Lapin de Garonne (*Anoplocephala cuniculi*, Bl.), p. 111.
  - III. Sur des Ténia dé échancrés du Chien (*Dipylidium caninum*), p. 112.
  - IV. *Dipylidium caninum* dans les glandes anales du Chien, p. 113.
  - V. *Cysticercus tenuicollis* chez un chevreau de quatre à six semaines, p. 114.
  - VI. *Cysticercus tenuicollis* chez l'*Oryx beisa*, p. 115.
  - VII. *Tenia tenuirostris*, Rud., chez l'Oie domestique ; remarques sur la classification des Cestodes parasites des Oiseaux, p. 115.
  - VIII. *Trichocéphale* de l'intestin du Furet, p. 116.

- [RAILLIET, A.] (3) Observations sur l'embryon du *Gynecophorus hematobius*, Bilharz. *T. c.* pp. 161-164.
- (4). Observations sur la Resistance vitale des embryons de quelques Nématodes. *C.R. Soc. Biol.* iv, pp. 703 & 704.
- (5) Sur un Tænia du Pigeon domestique représentant une espèce nouvelle (*T. delafondi*). *T. c.* pp. 49-53.
- (6). Un cas très ancien de *Tenia (Hymenolepis) diminuta* chez l'homme. *T. c.* pp. 894-896.
- \* — (7) Sur la fréquence de la Strongylose gastro-intestinale des leporides. *Rec. Med. Vét.* 1892, No. 8, p. 195-199.
- RAILLIET, A., & CADIOT, —. (1) Essai de transmission du *Strongylus vasorum* du Chien au Chien ; résultats négatifs. *C.R. Soc. Biol.* iv, pp. 702 & 703.
- (2) Strongylose du cœur et du poumon chez un Chien. *T. c.* pp. 482-486.
- RAILLIET, A., & LUCET, A. (1) Sur le *Davainea proglottina*, Davaine. *Bull. Soc. Z. Fr.* xvii, pp. 105 & 106.
- (2) Observations et expériences sur quelques helminthes du genre *Heterakis*, Duj. *T. c.* pp. 117-120.
- RAILLIET, A., & MOUSSU, —. La Filaire des boutons hémorrhagiques observées chez l'âne. Découverte du mâle. *C.R. Soc. Biol.* iv, pp. 545-550.
- RANDOLPH, H. (1) Ein Beitrag zur Kenntniss der Tubificiden. *Jen. Z. Nat.* xxvii, pp. 463-476, pls. xvii-xix, and *Viert. Ges. Zürich*, 37ter Jhrg. pp. 145-147.
- (2) The Regeneration of the Tail in *Lumbriculus*. *J. Morph.* vii, pp. 317-344, pls. xix-xxii.
- REPIACHOFF, W. O Ghastrulyatzii u Pozvonoch'n'ikh Zhivota'ikh s zamyechaniyami otnostel'no ghomologhiï zarod'ishev'ikh plastov u Metazoa. *Zapiski Novoross. Obsch. Estest.* xvii (1), pp. 113-137.
- On the Gastrulation of *Vertebrates*, with remarks on the homology of the Germinal layers in the Metazoa. The development of *Nereis*, *Lopadorhynchus*, and *Clepsine* introduced and compared. (In Russian.)
- RETZIUS, G. Biologische Untersuchungen. Neue Folge, iii. Stockholm : 1892, 4to, 68 pp. I. Das Nervensystem der Lumbriciden, pp. 1-15, pls. i-vi.
- RICHARD, J. Sur la présence d'un Cysticercoïde chez un calanide d'eau douce. *Bull. Soc. Z. Fr.* xvii, pp. 17 & 18.
- RICHES, T. H. A new British Nemertine (*Carinella polymorpha*). *J. Mar. Biol. Ass. (n.s.)* ii, pp. 284 & 285.
- RIEHM, G. Ueber die excretorischen Kanäle von *Schistocephalus dimorphus*. *Z. Naturw.* lxxv, pp. 132-136, pl. ii.

RITTER, E. (1) *Balanoglossus* as one of the generalised types in Zoology. *Zoe*, iii, pp. 187-199 (Errata, p. 282), pl. xxii.

— (2) Notes on an abnormal *Polygordius* Larva. *Am. Nat.* xxvi, pp. 1047-1050, 3 figg.

RITZEMA-BOS, J. [See BOS, J. RITZEMA.]

\*RIVA, A. Sopra una casa di anguillulosi intestinale. *Lo Sperimentale* Firenzi, xlv, pp. 40-69.

ROHDE, E. (1) Muskel und Nerv. *Zool. Beitr.* iii.

I. *Ascaris*, pp. 69-106. [See also SB. Ak. Berlin, 1892, pp. 515-526.]

II. *Mermis* und *Amphioxus*, pp. 161-182, pls. xxiii-xxv. [See also SB. Ak. Berlin, 1892, pp. 659-664.]

III. *Gordius*, pp. 183-192, pls. xxv & xxvi. [See also SB. Ak. Berlin, 1892, pp. 665-667. "Giebt es *Holomyaria*?" ]

ROSA, D. (1) Die exotische Terricolen des k. k. naturhistorischen Hofmuseums. *Ann. Hofmuseum. Wien*, vi (1891), pp. 379-406, pls. xiii & xiv.

Results given in Italian in *Boll. Mus. Zool. Tor.* vii, No. 114 (1892).

— (2) Viaggio di L. Fea in Birmania e regione vicine. xxvi Perichetidi, Seconda Parta. *Ann. Mus. Genov.* (2) x, pp. 107-122, pl. i.

— (3) I Lombrichi raccolti nell' isola di Engano dall Dott. E. Modigliani. *Op. cit.* (2) xii, pp. 542-548.

— (4) *Kynotus michaelsonii*, n. sp. (Contributio alla morfologia del *Geoscolicidae*). *Boll. Mus. Zool. Tor.* vii, No. 119.

— (5) Descrizione dell' *Allolobophora festae* nuova specie di Lumbricide. *T. c.* No. 122.

— (6) Descrizione dell' *Allolobophora smaragdina* nuova specie di Lumbricide. *T. c.* No. 123.

— (7) *Megascolex templetonianus*, n. sp. *T. c.* No. 131.

Preliminary diagnosis.

ROSSETER, T. B. On a new *Cysticercus* and a new Tape Worm. *J. Quek. Club*, iv, pp. 361-366, pls. xxii & xxiii (= *Echinocotyle rosseteri*, n. g. & sp., Blanch.).

ROUSSELET, C. (1) On the best methods of examining Rotifers under the Microscope. *Tr. Middlesex Soc.* pp. 23-30, 3 figg.

— (2) On *Notops minor*, n. sp. *J. Quek. Club* (2) iv, pp. 359 & 360, pl. xxiv.

— (3) On Two new Rotifers. *T. c.* pp. 367-370, pl. xxiv; [and *Am. Micr. J.* xiii, pp. 273-277.]

— (4) On the Sense of Vision in Rotifers. *T. c.* pp. 371-373, 376 & 377.

ROVELLI, G. [See GRASSI G., & ROVELLI, G.]

SAINT JOSEPH, —. Sur la croissance asymétrique chez les Annélides polychètes. C.R. cxv, pp. 887-890.

SAINT REMY, G. (1) Synopsis des Trématodes Monogénèses (Continuation and Conclusion). Rev. Biol. iv, pp. 136-145, 184-191, 224-230, & 253-261.

— (2) Matériaux pour l'anatomie des Monocotylides. *Op. cit.* v, pp. 46-52, 2 figg.

— (3) Contribution à l'étude de l'appareil génital chez les Tristomiens. Arch. Biol. xii, pp. 1-56, pls. i & ii, and 3 woodcuts.

— (4) Liste des Trematodes monogénèses recueillis à Roscoff. C.R. Ass. Fr. Sci. 1891 (2), pt. ii, pp. 571-574.

— (5) Les Idées actuelles sur le développement et les relations des Cestodes et des Trematodes. Rev. Gén. Sci., 3<sup>e</sup> année, pp. 183-188, 10 figg.

SANGALLI, G. *Echinococco* ed *Estrus* nell' uomo. Rend. Ist. Lombardo, xxv, pp. 1167 & 1168.

\*SCHULTÉN, M. W., & HOMÉN, E. A. Fall af *Echinococcus* i bäckenet och bukhålen. Finska Läkare. Förh. xxxii, p. 358.

SEKERA, E. Einige Bemerkungen über das Wassergefäß-system der Mesostomiden. Zool. Anz. xv, pp. 387 & 388.

Criticism of VOIGT (2).

SEITI, E. Sulle tenie dell' *Hydra* dello Scioa. Genova tip. Ciminago: 1891, 8vo, 12 pp., 1 pl. Estr., Atti Soc. Ligust. ii, 2, 1891.

\*SEYFERT, R. Beiträge zur Operation des intralocularen *Cysticercus*. Inaug. Dissert. Univ. Heidelberg. Leipsig: 1892, 8vo, 1 fasc.

SHIPLEY, A. E. On *Onchinosoma steenstrupii*. Q. J. Micr. Sci. xxxiv, pp. 233-250, pl. ix.

SIMMONS, W. J. The Human Blood Worm (*Filaria sanguinis hominis*). Sci. Goss. 1892, pp. 11-14, 18 figg.

SKIMKEVICH, V. Otchet o zaghranichsī poyezdkye 1891 ghoda. Trudui St. Petersburg Est. xxii, 2 (1891), pp. 113-124, 4 figg. (Report on Foreign Travels in the year 1891.)

3 species of *Balanoglossus*. Nerve-cord of *Balanoglossus* compared with that of *Amphioxus*.

\*SLAUGHTER, R. M. *Filaria sanguinis hominis*. The Discovery and Prevalence of the Disease in the U. S. A.: report of two new cases. Practise, 1891, pp. 329-335.

SONSINO, P. (1) The Principal and most Efficacious Means of Preventing the Spread of Entozoa Affections in Man. Trans. of the 7th Internat. Congr. Hyg. Demog. London: 1891 (2), Sect. i, pp. 332-345.

Gives distribution of various *Entozoa*, according to countries and organs of the body. Synopsis of exotic *Entozoa* in Man, with a table of their geographical distribution.

- [SONSINO, P.] (2) Dei Distomi dello "*Zamenis viridoflavus*, Lacép.", e di una fase del ciclo vitale di uno di essi. Atti Soc. Tosc. viii, P.-v. pp. 91-95.
- \*——. (3) Tre casi di malattia da Rabdonema intestinale o Rabdonemiasi. Estr. Supp. Riv. gen. ital. Clinica Med. 1892.
- . (4) Studi sui parassiti di molluschi di acqua dolce nei distomi di Cairo in Egitto. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipsig (Engelmann): 1892, pp. 131-147, pl. xviii.
- SPENCER, W. BALDWIN. (1) Land Planarians from Lord Howe Island. Part I. Description of Species. Tr. R. Soc. Vict. ii, 2, 1891 (1892), pp. 42-51, pls. v & vi.
- . (2) A Trip to Queensland in Search of *Ceratodus*. Vict. Nat. ix, pp. 16-31; Nature, xlv, p. 306.
- Land Planarians and Oligochæts recorded.
- . (3) Preliminary Description of Victorian Earthworms. Part I. The Genera *Cryptodrilus* and *Megascolides*. P. R. Soc. Vict. (n.s.) iv, pp. 130-156, pls. xiv-xix.
- SPENGEL, —. Abnormitäten des Geschlechtsapparats von *Distomum hepaticum*. Verh. deutsch. Zool. Ges. 2te Jahresversamml. 1892, pp. 146 & 147.
- STADELMANN, H. Ueber den anatomischen Bau des *Strongylus convolutus*, Ostertag, nebst einige Bemerkungen zu seiner Biologie. Arch. f. Nat. lviii, pp. 149-176, pl. x.
- STILES, C. W. (1) *Myzomimus scutatus* (Müller), Stiles. J. Comp. Med. Vet. Arch. 1892, pp. 65-67, 1 fig. (Preliminary.)
- Subsequent paper on the same animal, with full anatomical details, in Festschr. z. 70ter Geburtstage R. Leuckarts. Leipsig (Engelmann): pp. 126-134, 1 pl.
- . (2) *Filaride* in body cavity of Horse and Cattle. J. Comp. Med. Vet. Arch. 1892, pp. 143-146, 1 fig.
- . (3) List of Animal Parasites of Cattle. T. c. pp. 346-350.
- . (4) Two cases of *Echinococcus multilocularis* in Cattle. T. c. p. 350.
- . (5) On the presence of *Strongylus ostertagi* in America. T. c. pp. 147 & 148.
- . (6) *Distoma magnum*, Bassi. T. c. pp. 464-466.
- . (7) A word in regard to Dr. Francis' *Distomum texanicum*. Am. Vet. Rev. 1892, pp. 732 & 733.
- Shows that it is *D. americanum*, Hassall.
- . (8) Notes sur les Parasites: (13) *Tenia giardi* (Riv.), Moniez; (14) *Tenia* (*Moniezia*) *expansa*, Rad.; *Moniezia* (*T.*) *planissima*, n. sp. Bull. Soc. Z. Fr. xvii, pp. 157-159, and C.R. Soc. Biol. iv, pp. 664-666.
- Full anatomy in Bull. Bur. Anim. Industry promised.

[STILES, C. W.] (9) On the adult Cestodes of Cattle and Sheep (Abstr.).  
P. Am. Ass. 41st Meeting. Rochester : 1892.

Discusses relations of *T. giardi* to Blanchard's new genus *Moniezia*. Full paper in Rep. U. S. Dep. Agric. promised.

——. (10) Criticism of Linton [see Zool. Rec. 1891, LINTON (1), (2), (3)]. Am. Nat. xxvi, pp. 65-68.

——. (11) A method of Killing Nematodes for Microtome Sections. *T. c.* p. 972.

——. [See also HASSALL & STILES.]

STOLL, —. Zur Zoogeographie der landbewohnenden Wirbelthieren. Viert. Ges. Zürich, xxxvii, pp. 233-274.

Oligochaets and Nematodes, pp. 248-250. Land Planarians, pp. 253 & 254. Leeches, pp. 254-256.

STOSSICH, M. (1) I Distomi nei Mammiferi. Lavoro monografico. Trieste : 1892, 8vo, 42 pp.

Gives list of 61 species, with various hosts. List of 83 Mammals, with *Distomidae* known to be parasitic in each. Clear and terse.

——. (2) I Distomi degli uccelli. Lavoro monografico. Boll. Soc. Adr. xiii, pp. 143-196.

Also with a reciprocal index.

——. (3) Nuova serie di elminti veneti raccolti dal Dr. P. Alessandro conte Ninni. Glasnik naravosl. Druzt. vi (1891), pp. 216-219, pl. iii.

——. (4) Osservazioni elmintologiche. *Op. cit.* vii (1892), pp. 64-73, pls. i & ii.

STRASSEN, O. ZUR. *Bradynem rigidum*, v. Sieb. Z. wiss. Zool. liv, pp. 653-747, pls. xxix-xxxiii.

STRODTMANN, S. Die Systematik der Chaetognathen und die geographischen Verbreitung der einzelnen Arten im nordatlantischen Ocean. Arch. f. Nat. lviii, pp. 333-377, pls. xvii & xviii. Abstr. in J. R. Micr. Soc. 1892, p. 792.

STRÖSE, A. Ueber den feineren Bau von *Strongylus micrurus*. Deutsche Z. Thiermed. xviii, pp. 233-260, 3 pls.

STUART, J. Search for *Balanoglossus* and *Amphioxus* at Marine Laboratory, Port Henderson. J. Inst. Jamaica, i, 2 (1892), pp. 44 & 45.  
New species of *Balanoglossus* found.

THOMPSON, J. C. New Rotifer. Tr. Liverp. Biol. Soc. vi (1892), pp. 77-82.

THOMPSON, P. G. (1) Moss-haunting Rotifers, with descriptions of two new species. Sci. Goss. 1892, pp. 56-61, 8 figg.

——. (9) Notes on the parasitic tendency of Rotifers of the genus *Proales*, with an account of a new species. *T. c.* pp. 219-221, 1 fig.

TOKISHIGE, H. [See JANSON & TOKISHIGE.]

1892. [VOL. XXIX.]

- TRYBOM, F. *Mermislarver hos Chironomus*. Ent. Tidskr. xiii, pp. 81-92.
- TULLBERG, T. Ueber Conservierung von Evertebraten in ausgedehntem Zustande. Biol. Fören. iv, pp. 4-9.  
Results given (in French) in Arch. Z. expér. (2) x, N. & R. p. xi.
- TUTTLE, A. H. An interesting case of parasitism (preliminary). P. Am. Ass. 41st Meeting, Rochester, 1892, p. 201.  
A *nematode* parasitic in the venom organ of the common Rattlesnake.
- TURNER, C. H. Notes upon *Cladocera*, *Copepoda*, *Ostracoda*, and *Rotifera*, of Cincinnati, with description of new species. Bull. Denison Univ. vi, 2, pp. 57-74, pls. i & ii.  
Rotifers, pp. 57-66, 1 pl.
- UDE, H. Ein neues *Enchytraiden*-Genus. Zool. Anz. xv, pp. 344 & 345.
- VAILLANT, L. Remarques sur les Némertiens d'eau douce. T. c. pp. 125 & 126.  
Criticism of PLESSIS, G. DU. (1).
- VÁVRA, V. [See FRITSCH, A., & VÁVRA, V.]
- VAYSSIÈRE, A. (1) Études sur le *Temnocephala*, parasite de l'*Astacoides madagascariensis*. Ann. Fac. Marseille, ii, pp. 77-99, pl. i. Abstr. in C.R. cxv, pp. 64 & 65.  
A new species.
- VEJDOWSKY, Fr. (1) Ueber die Encystierung von *Aelosoma* und der Regenwürmer. Zool. Anz. xv, pp. 171-175.  
— (2) Zur Entwicklungsgeschichte des Nephridial-Apparates von *Megascolides australis*. Arch. mikr. Anat. xl, pp. 552-562, pl. xxxii.
- VETTER, B. Ueber Rotatorien. SB. Ges. Isis, 1892, p. 4.  
Relation of Rotifers to Trochosphere larva doubted; no reasons given.
- \*VIERORDT, —. Ueber das Vorkommen des cystösen *Echinococcus* in Württemberg. Med. Corresp. Bl. Würt. 1891, p. 137.
- VILLENEUVE, —. La Bilharziose in Tunisie. C.R. Ass. Fr. Sci. Marseilles, 1891 (2), pt. i, p. 244, pt. ii, p. 556.
- VILLOT, A. (1) Encore un mot sur la classification des Cestiques. Zool. Anz. xv, pp. 210-212.  
Maintaining his classification, as opposed to GRASSI and ROVELLI.  
— (2) Gordiens de Sumatra. Description de deux espèces nouvelles. Zool. Ergebnisse einer Reise in Niederländisch Ostindien, Bd. ii, Heft. 2, pp. 136-138.
- VOGT, C. Sur le parasitisme transitoire d'une Turbellariée triclade (*Gunda* sp.). C.R. Ass. Fr. Sci. 1891 (2), pt. i, pp. 239-240.
- VOIGT, W. (1) Die Fortpflanzung von *Planaria alpina* (Dana). Zool. Anz. xv, pp. 238-241.

- [VOIGT, W.] (2) Das Wassergefäßssystem von *Mesostoma truncatum*, O. Sch. Zool. Anz. xv, pp. 247 & 248. Abstr. J. R. Micr. Soc. 1892, p. 616.
- (3) Karten zur Verbreitung der *Planaria alpina* und *gonocephala*; *Polycelis cornuta*. SB. niederrhein. Ges. (Naturw. Sekt.) 1892, p. 104.
- In Siebengebirge, Feldberg, Altkönig in Taunus.
- VONCKEN, —. Empoisonnement par retention de toxines intestinales dû à la présence de vers intestinaux. Arch. Méd. Belge (1892) ii, pp. 8-12.
- WAGNER, FR. V. General observations on Fission and Gemmation in the Animal Kingdom. Ann. N. H. x, pp. 23-54. Transln. from paper in Zool. Jahrb. Abth. f. Anat. iv (1890). [See Zool. Rec. 1890.]
- WALTER, E. Ueber einige Monostomen aus dem Darne einer Schildkröte. Zool. Anz. xv, pp. 448-450. Abstr. in J. R. Micr. Soc. 1892, p. 616.
- WANDOLLECH, B. Zur Embryonalentwicklung des *Strongylus paradoxus*. Arch. f. Nat. lviii, i, pp. 123-148, pl. ix.
- WARD, H. B. On *Nectonema agile*, Verrill. Bull. Mus. C. Z. xxiii, No. 3, pp. 135-188, 8 pls.
- WASSILIEFF, E. Turbellaria rhabdocoela okrestnostej Varshavui. Tradui obsch. estest. Varsovie (Protok Otyeleniya biologhii) iii (1891-2), pp. 12-16.
- WATSON, A. T. The protective device of an Annelid. Nature, xlvi, p. 7. [See Zool. Rec. 1891, WATSON, A. T., Vermes, p. 25.]
- Identification of sp. *Sabella saxicava*.
- WAWRZIK, F. Ueber das Stützgewebe des Nervensystems der *Chaetopoden*. Zool. Beitr. iii, pp. 107-128, pls. xiv-xix.
- WESTERN, G. Two male Rotifers hitherto undescribed. J. Quek. Club, iv, pp. 374 & 375, pl. xxv (part of), and Am. Micr. J. xiii, pp. 278 & 279.
- WHITMANN, C. O. The Metamerism of Clepsine. Festschr. z. 70ten Geburtstage R. Leuckarts. Leipzig (Engelmann): 1892, pp. 385-395, pls. xxxix & xl.
- WIERZEJSKI, A. (1) Zur Kenntniss der *Asplanchna*-Arten. Zool. Anz. xv, pp. 345-349, 2 figg.
- (2) Crustacés et Rotifères d'eau douce recueillis en Argentine. Bull. Ac. Cracovie, 1892, p. 185.
- (3) Rotatoria (wrolki) Galicyi. Résumé. T. c. p. 402.
- From a book with the same title, and with 3 plates.
- (4) *Atrochus tentaculatus*, n. g. & sp., ein Räderthier ohne Räderorgan. Z. wiss. Zool. lv, pp. 696-712, pl. xxxii.

- WILLACH, —. A Nematode parasitic in nodules in colon of *Macacus cynomolgus*. Arch. wiss. prakt. Thierheilk. 1891, pp. 340–346.
- WILSON, E. B. The Cell Lineage of *Nereis*. A contribution to the cytogeny of the Annelid body. J. Morph. vi, pp. 361–480, pls. xiii–xx, and 9 woodcuts.
- WOODWARD, M. F. Description of an Abnormal Earthworm possessing seven pairs of ovaries. P. Z. S. 1892, pp. 184–187, pl. xiii.
- ZACHARIAS, O. Das Vorkommen von Distomencysten betreffend. CB. Bakt. Parasit. xii, pp. 752 & 753.
- ZELINKA, C. Das subcæsophageale Ganglion von Rotifern. Verh. deutsch. Zool. Ges. 2te Jahresversamml, 1891 (Exhibition of).
- ZOGRAF, N. (1) Les Cestodes offrent-ils des tissus ectodermiques? Arch. Z. expér. (2) x, pp. 331–343, pl. xiii.
- . (2) Note sur l'origine et les parentés des Arthropodes, principalement des Arthropodes trachéates. Congr. Internat. Zool., Moscow, 1892, pp. 278–296, 6 figg.
- Relationship to Annelids dealt with.
- ZSCHOKKE, F. (1) Zur Lebensgeschichte des *Echinorhynchus proteus*, Westrumb. Verh. Ges. Basel, x, pp. 73–83.
- . (2) Seltene Parasiten des Menschen. CB. Bakt. Parasit. xii, pp. 497–500.
- . (3) Parasiten der Süßwasserfische. In: Die Tier und Pflanzenwelt des Süßwassers. v. O. Zacharias. Bd. ii. Leipsig (J. J. Weber): 1892.
- ZYKOFF, W. Zur Turbellarienfauna der Umgegend von Moskow. Zool. Anz. xv, pp. 445–447.

## VERMES IN GENERAL.

Theory of mesoderm formation and metamerism; CHOLODKOWSKY.—Discussion of *Vermes*, and especially of the different names given to the Nephridia in the different groups; COSMOVICI (3) and V. KENNEL (2).

### I.—HEMICHORDATA.

[*Balanoglossus*, *Cephalodiscus*, *Rhabdopleura*.]

#### A.—BIOLOGICAL.

*Balanoglossus*, as one of the generalised types in Zoology; RITTER (1). Morphology of *Rhabdopleura*, showing its relations to the *Hemichordata*; FOWLER, G. H.

Comparison of nerve-cord of *Balanoglossus* with that of *Amphioxus*; SKIMKEVICH.

Method of obtaining larvæ of *Balanoglossus* (improvement on Bateson's); MORGAN (2).

## B.—FAUNISTIC.

Solovetzki : *B. merejkowskii* ; KNĪPOVĪCHA.

United States : *Balanoglossus kowalewskii* in both Wood's Holl and Newport ; *Tornaria* of New England, ? = that of *B. krohnii*, Bourne, of the Mediterranean ; MORGAN (1).

Jamaica : a new species of *Balanoglossus*, ANDREWS (1), STUART.

Nightingale I. : *Rhabdopleura normanni*, Allm. ; FOWLER, G. H.

## C.—SYSTEMATIC.

*Balanoglossus claviger* and *minutus*, figured ; SKĪMKEVĪCH. *B. krohnii* : its *Tornaria* in New England ? MORGAN. *B. kowalewskii* in New England ; MORGAN (1). *B. merejkowskii* compared with *Amphioxus* ; SKĪMKEVĪCH ;—from Solovetzki ; KNĪPOVĪCHA, pp. 24, 35, & 40. *B.*, n. sp. (or n. spp.), from Jamaica ; ANDREWS (1), STUART.

*Rhabdopleura normanni*, Allm. : morphology of ; FOWLER, G. H.

## II.—ANNELIDA.

[Including *Gephyrea*, *Chaetopoda*, and *Hirudinea*.]

## A.—BIOLOGICAL.

## 1. GENERAL.

On the relation of Arthropods (*Tracheata*) to Annelids ; ZOGRAT (2) [see also p. 54 of Record, under *Platyhelminthes* : Excretory system ; RIEHM].

Anatomy and histology of *Branchiura sowerbyi*, a new Branchiate Oligochæt ; BEDDARD (5) : of *Onchnesoma steenstrupi* ; SHIPLEY : of *Sparganophilus tamesis*, n. g. & sp., of aquatic *Oligochæta* ; BENHAM (3) : of Australian *Chlorhaemidae* ; HASWELL (1) : of *Alciopidae* of Messina ; HERING : of two Acanthodriloid Earthworms from New Zealand ; BENHAM (2) : of the *Tubificidae* ; RANDOLPH.

Anatomy of *Amphichæta sannio*, n. g. & sp. of *Oligochæt* ; KALLSTENIUS : of Victorian Earthworms ; SPENCER (3) : of Russian and Siberian Earthworms ; KULAGIN.

## 2. EPIDERMIS.

GOODRICH describes an Oligochæt, with a dense covering of fine hairs or bristles all over. LENHOSSÉK (2) shows by Golgi's methods that the blood vessels penetrate right into the epidermis of the Earthworm, not exclusively in the chitellar region. LENHOSSÉK (1) describes the terminations of sensory nerves in the Earthworms. JOURDAIN (1) describes them in Polychæts.

## 3. MUSCULAR SYSTEM.

Absence of spindle muscle, and presence of only one retractor muscle in a Sipunculid ; SHIPLEY.

What was formerly taken for jaw muscles in the *Hirudinea* (*Gnathobdellidae*) shown to be ducts of salivary glands ; LEUCKART (2).

## 4. DIGESTIVE SYSTEM.

Alimentary canal of *Hirudo* fully described and figured ; HENKING.

LEUCKART (2) describes fully the salivary glands of the *Hirudinea* with jaws, in which alone they are present. The duct of each gland (and of these there are about a hundred in *Hirudo*, a dozen in *Aulastoma*) divides, on reaching the root of the tooth, into two halves, which then meet again to open by a short narrow duct in the tooth to the exterior. He concludes that in *Aulastoma* the juice secreted must have some other function than that of preventing coagulation. He shows that besides the salivary glands there are other glands—maxillary glands and unicellular glands—histologically, chemically, and optically distinct from them, but also opening into the mouth.

BLANCHARD (6) proposes the name "pseudognaths" for the jaws of Nephelids, to distinguish them from those of other *Gnathobdellidae*.

The cells lining the intestine of *Lumbricus* and their action are described very fully by GREENWOOD. Around and almost covering in the gland-cell, whose secretion serves for the digestion of the food, are other cells ciliated towards the lumen of the intestine, and serving for the absorption of food. Whilst fat is being digested, however, the cilia disappear, and a striated border to the cell appears in their place. The ciliated cells are more evident in the walls of the typhlosole than of the intestine proper.

In a new genus of Oligochaet, allied to *Chaetogaster*, it is shown that the lumen of the anterior part of the alimentary canal of the asexually-produced bud, is formed by the fusion of two secondary lateral lumina, on either side of the old alimentary canal ; KALLSTENIUS.

## 5. COELOM.

JOURDAIN (3) shows that the coelom is lined by a ciliated epithelium in Sipunculids, and refers to instances of the same thing in other animals, vertebrate and invertebrate, concluding therefrom that the word "endothelium," in anatomy, should be done away with. He is criticized by MALASSEZ.

## 6. CONNECTIVE TISSUE.

Yellow bodies in the connective tissue elements of Sipunculids shown by JOURDAIN (2), to be due to granules of a glycogenous matter, serving as reserve food material.

## 7. CIRCULATORY SYSTEM.

Circulation of *Lumbricus*; GRIFFITHS (1); and LENHOSSÉK (2), where it is shown that blood vessels penetrate right into the epidermis.

Chemical constitution of the blood in Gephyreans, Chaetopods, and Leeches; GRIFFITHS (2). Hermérythrine, a new iron-containing respiratory pigment in the blood of Sipunculids; GRIFFITHS (3).

Vascular system of *Chlorhaemidae*; HASWELL (1).

Absence of vascular system in a Sipunculid; SHIPLEY.

## 8. RESPIRATORY SYSTEM.

SHIPLEY maintains that the intestine is the chief respiratory organ in the unarmed Gephyreans, and that the vascular system serves merely to extend the tentacles.

BEDDARD (4, 5) describes a new Oligochæt with about fifty pairs of branchiæ, one pair per segment, at its hinder end. These are simple processes, situated on the middle dorsal and ventral line, not ciliated; the coelom extends into them, and blood vessels lie just beneath the epidermis on each side of each, breaking up into capillaries in the integument.

## 9. EXCRETORY SYSTEM.

Development of nephridia in *Megascolides*; VEJDOWSKY (2): in *Acanthodrilus multiporus*, BEDDARD (6). In *Megascolides* functional nephrostomes appear never to be developed at all except in the posterior segments, where the meganephridia afterwards appear; anteriorly the rudiments of them soon disappear and micronephridia are developed straight away, with intercellular efferent ducts, and not at first connected by longitudinal ducts. In *Acanthodrilus* all the nephridia in the youngest embryos have functional nephrostomes, which all become rudimentary later except for those in segments xi-xiv; they are formed as meganephridia; secondary openings to the exterior are formed later, when the micronephric condition is assumed; the second pair, and then one or two other pairs, become connected with the first to form the "mucous gland" opening into the stomodæum; the anal nephridia are formed late, and open into the mesenteron, not into the proctodæum; the gonaducts are developed from the nephridial funnels and a small portion of the succeeding tube.

KALLSTENIUS shows that in a new genus of fresh-water Oligochæt the nephridia are fused with the ventral vessel throughout their course.

BOLSIUS (2) describes the nephridia of fresh-water Leeches, showing that in *Nepheleis*, *Clepsine*, and *Hemiclepsis*, there are to each nephridium three distinct unicellular canals, each arising from a separate group of branching intracellular tubules, and uniting with one another only just before opening to the exterior. In *Hirudo medicinalis* he proves the existence of multicellular glands opening into the intracellular canals. He gives a review of the work hitherto done on the nephridia of Leeches.

He also shows (1) that the so-called ciliated "funnels" have no connection with the nephridia.

Only a single nephridium in a Sipunculid ; SHIPLEY.

Excretory organ of *Coppingeria* (n. g. of *Chlorhamidæ*) ; HASWELL (1).

Individual variation in the position of the nephridiopores in Earthworms ; HUBRECHT—the conclusion being arrived at that the meganephric arrangement of nephridia is probably the more primitive : in Leeches ; BLANCHARD (6) and (3, III).

## 10. NERVOUS SYSTEM.

Several very important papers on the Nervous System of Annelids and Nematodes [see Nematode part of Record] throw light on the histology of nervous systems in general. v. LENHOSSÉK (1) and RETZIUS agree that in *Lumbricus* the sensory nerve-cells do not lie in the nerve-cord nor in special ganglia, but in the epidermis ; from them fibres go to the nerve-cord dividing there into an ascending and a descending branch, which run on the same side of the body as the nerve enters—through the length of three ganglia according to v. LENHOSSÉK, not quite as far as the next ganglion according to RETZIUS—and so end in the "Punksubstanz," not uniting with ganglion cells. RETZIUS shows, further, that the motor nerve-cells lie in the ganglia of the ventral cord and send processes which branch into the "Punksubstanz" as well as nerves to the periphery, which there branch to the muscles ; these nerves sometimes arise from ganglion cells of the same side, sometimes from those of the opposite side of the body, so that there is a certain amount of decussation ; in each ganglion there is one multipolar cell of unknown function. CERFONTAINE maintains the nervous nature of the giant-fibres in *Lumbricus* ; they are, however, very special nerve fibres resulting from the union of the prolongations of several axis cylinders coming from distinct cells ; they give off branches in each ganglion, which connect them either with other elements of the nerve-cord, or with the periphery ; the median giant-fibre develops from in front backwards, and the lateral ones from behind forwards, the currents in them are, therefore, going in opposite directions ; their function, he concludes, is to connect lengthwise the different parts of the nervous system, and to allow for the simultaneous muscular contraction in the whole extent of the body. APÁTHY (2), working at Leeches, regards each nerve as a bundle of primitive fibrils surrounding some central protoplasm ; these fibrils are supposed to carry the nerve impulse. He is criticized by ROHDE (1, 1).

WAWRZIK discusses the supporting structures of the Nervous System in Chætopods.

## 11. SENSE ORGANS.

JOURDAIN (1) describes sensory nerve-terminations in several Polychæts, situated generally on the appendages, but sometimes on the body-

wall where there are no appendages, consisting sometimes of cells of the Vertebrate olfactory type, sometimes ciliated, and sometimes much like the ordinary epithelial cells.

Eyes: The derivation of the Vertebrate from the Annelid eye; V. KENNEL (1). A Sipunculid, with pigment spots or eyes; SHIPLEY. Eyes of *Polychæta*; ANDREWS (3): the structure of the adult eyes of 26 species is described and, for most of them, figured; the development of the eye is given in 5 species; it is found that each eye is a pigmented cup, formed of one layer of retina cells all essentially alike, and consisting each of a peripheral body containing pigment and a central clear rod; some of the cells are much attenuated; the lens is continuous with the cuticle, sometimes also with the retinal cells, and is either secreted by the retinal cells, or formed from the fused central ends of them; the connection with the epidermis persists (except in the *Alciopidae*, where there the development of the eye is exceptional), the eye being formed not as an invagination, but by the elongation and pigmentation of a few epidermis cells, whose central ends become the rods by the withdrawal of the pigment to the opposite end. BERANECK describes the development of the eye in the *Alciopidae*, showing that it is built on quite a different plan to the Arthropod eye. The eyes of certain of the *Chlorhaemidae* are described by HASWELL (1): in one genus they are on special processes of the prostomium in the bases of which are optic ganglia which are outgrowths of the brain. MAIER describes the minute structure of the eyes in the *Hirudinea*, showing that in *Hirudo* and *Aulastomum*, while the main branch of the nerve enters the eye posteriorly, there is also a small one entering it anteriorly and ventrally; while in *Nephelis*, *Clepsine*, and *Piscicola* there is only the one branch entering the eye in front. BLANCHARD (6) mentions asymmetry of the eyes as occurring often in *Nephelis*, but seldom in *Hirudo*.

Auditory Organs: EHLERS (1) describes very fully the structure of the so-called "auditory organ" in the different species of *Arenicola*: in *A. claparedii* there is only an open groove, with no otoliths or neuroepithelium; in *A. marina* the otocyst, though deep-lying, is still connected with the exterior by a narrow canal, and contains foreign particles; in *A. grubei* and *A. antillensis* the sacs are quite closed and the otoliths are intrinsic formations; in no species are there hairs or rods to the cells forming the sac, and the author suggests that they more probably serve as organs of equilibration than as auditory organs; he shows that they have nothing to do with the "Nackenorgane," nor do they correspond to the setal sacs of the parapodia; they may, however, represent modified cirri.

Embryonic sense organs: BEDDARD (6) describes in *Acanthodrilus* an unpaired sense organ in the young embryo, consisting of a few large cells on one side of the stomodæal aperture; in the advanced embryo he also finds peculiar cells in the epidermis, which he thinks form a sense organ.

## 12. GENITAL SYSTEM.

BEDDARD (6) shows that there are originally 4 pairs of gonads with their ducts developed in *Acanthodrilus* in segments x-xiii; and that the one in the 12th segment afterwards degenerates. WOODWARD describes an abnormal *Allolobophora* with 7 pairs of ovaries. BLANCHARD (4) describes a Leech with two pores on the female segment (xi), one between the 32nd and 33rd, the other between the 35th and 36th annuli; of these, sometimes the one, sometimes the other, is the larger; their significance is not shown. ROSA (1) describes an Earthworm (*Paradrilus rosae*, Mich.) in which the spermathecæ are in communication with the intestine, as well as with the exterior, as in the *Enchytraida*. GOODRICH describes a Tubificid, in which the spermathecæ open by a median pore in the 10th segment, and in which the sperm-ducts also open by a median atrium.

## 13. REPRODUCTION.

Fertilization of *Clepsine*: MÜLLER. Hybridism in Earthworms; BENHAM (2), FRIEND (8), BEDDARD (11). Asexual reproduction in *Amphichæta*, n. g. of Oligochæt, KALLSTENIUS. Encystment: [see under "Habits," &c]. CHUN suggests that the process to which he gives the name of Dissogony, the ripening of one individual in two different stages of its development, may take place in *Nereis*. PROUHO discusses the different kinds of individuals, with regard to sex, in the Mediterranean *Mysostomas*, showing that in one species (*M. alatum*) the sexes are distinct in the young, the males being much smaller than the females, but that then the males develop ovaries, thus becoming hermaphrodite.

## 14. DEVELOPMENT.

The recent researches into the germ-layers of Annelids (*Nereis*, *Lopadorhynchus*, and *Clepsine*), as affecting the interpretation of the germ-layers of Vertebrates; REPIACHOFF. The development of *Nereis* is very fully and carefully worked out by WILSON, the whole history of each cell of the segmentation sphere being given; it is shown that, owing to the large size of the left posterior macromere, the cells of the segmentation sphere have a spiral instead of radial arrangement; bilateral symmetry is only assumed later, after the formation of the mesoblast; the question of bilateral symmetry in the cleavage of other eggs is discussed, and it is concluded that in all cases it results from the anticipation of the bilateral symmetry of the adult; in an appendix the author mentions several other Polychæts which he has examined, in which he also found spiral segmentation of the ovum, continuing even to a later period.

Development of *Arenicola*; EHLERS (2): The young of *A. marina* is pelagic though not found at the surface; its body consists of 2 regions, the one comprising prostomium, buccal segment, and 20 succeeding double segments, the other numerous, narrow and non-setigerous segments; there

are no branchiæ. Points in development of *Acanthodrilus*; BEDDARD (6). Comment on Apáthy's description of the development of *Hirudinea* [see Zool. Rec. 1891, *Vermes*, APÁTHY (2)]; BERGH: provisional larval muscles of *Gnathobdellidæ*, and larval skin drawn attention to; teloblasts said to have been not clearly interpreted by APÁTHY.

## 15. METAMERISM AND VARIATIONS THEREIN; ALSO OTHER VARIATIONS.

WHITMAN contributes an important paper on the metamerism of Leeches. He concludes that the head consists merely of a certain number of true metameres (1-6), and these have the same ganglia as the other metameres, only somewhat displaced; also that the typical number of annuli per segment is 3, so that when fewer or more are found either suppression or division of one or more annulus must have taken place. The trunk is formed by two germ bands, which are at first dorsal, but grow round the yolk mass to meet in the mid-ventral line from in front backwards, and segmentation then begins on the ventral surface; segmentation of the head begins in front of the bands and on the dorsal surface only, after the segmentation of the germ-bands on the ventral surface but before their segmentation on the dorsal surface. The metameric sense organs and their nerve supply are very fully described and figured.

Variation in normal type of segmentation for *Trocheta*, owing to fusion of annuli; BLANCHARD (6). Variation in number of annuli in specimens of *Glossiphonia*, from same locality; BLANCHARD (3, IV).

Spiral Metamerism: both CORI and MORGAN (3) have independently shown in Chaetopods the frequency with which, in certain genera, normal circular segmentation is replaced by spiral segmentation for a greater or less number of segments. SAINT JOSEPH also shows that a great deal of asymmetry prevails in the *Sabellidæ*, and it would seem that his cases may also be treated as cases of spiral segmentation. BLANCHARD (6) mentions the occurrence of the same thing in Leeches.

Other cases of asymmetry: in male genital pore of Oligochæts; FRIEND, (14) p. 108, COLLIN, A. (1): in Clitellum; BEDDARD (11): in eyes of Leeches; BLANCHARD (3, V) and (6).

Bifurcation: recorded instances in Chaetopods collected; ANDREWS (2). Tail double, the two halves meeting at the posterior extremity, and separated from one another anteriorly, in an Oligochæt; FRIEND, (14) pp. 108 & 109. Head double, the one half, consisting of two segments and prostomium only, moving like a feeler to the other; FRIEND, (14) p. 161.

Symmetrical variations in position of nephridial and genital pores in Leeches; BLANCHARD (3, III) and (6).

Variations in number: an *Allolobophora* with seven pairs of ovaries though with only the usual one pair of oviducts; WOODWARD.

An abnormal larva of *Polygordius*; RITTER (2). A larva is described

which behaves very much in the way of a *Phoronis* larva, a bud being given off behind the head, into which the alimentary canal extends, opening to the exterior at its extremity, for a certain length of time. How the original axis becomes the adult axis, and the bud disappears, was not observed, though it is assumed that this happens.

An albino *Perichæta monilicystis*; MICHAELSEN (1).

## 16. SYNONYMY, CLASSIFICATION, &c.

Synonymy of certain Polychæts, including several of Schmarda's species; MICHAELSEN (4): of some northern forms; v. MARENZELLER (1). Schmarda's species of Oligochæts renamed on examination of the type specimens; BEDDARD (2).

Classification of Annelids; HATSCHEK.

Value of colours and markings of Leeches in forming new varieties; NUSBAUM (2).

[See also Systematic part of Record.]

## 17. HABITS, PROPERTIES, AND STRAY NOTES.

Temporary encystment of *Ælosoma*; BEDDARD (1), VEJDOWSKY (1). Vejdowsky compares with this the formation of special burrows by certain *Lumbricidæ*, and ascribes both sets of phenomena to the rest required after a period of asexual reproductive activity. An Annelid (*Leucodora coeca*) living in a sponge (*Microciona*); HORNELL (2). Annelid with tube coiled like the frond of a fern [Zool. Rec. 1891, *Vermes*, p. 25], shown to be *Sabella saxicava*; WATSON. Polychæts parasitic on Echinoderms; MATZDORF (3), and CUÉNOT. Myzostomas parasitic on or in *Antedon phalangium*; PROUHO. Horse Leech in nasal mucous membrane of man; CONDORELLI (4). Leeches and Earthworms swallowed alive by the Bittern; LIEBE. *Clepsine tessellata* in posterior nares of Swan; COLLIN, A. (2). The blood of Leeches as a medium for the cultivation of *Haematoozoa*; LABBÉ. Earthworms as fertilizers of the soil; LOZ: as the carriers of the tubercle bacillus; LORTET & DESPEIGNES. A protozoon (*Rhabdostyla arenicolæ*) parasitic on the branchiæ of *Arenicola marina*; MATZDORF (2). On the conditions of existence of pelagic organisms, including Polychæts and *Sagitta*; KOEHLER. Phosphorescence in Earthworms; HILLIGER, GIARD. The dissemination of Leeches by Palmipeds; GUERNE (1) and BLANCHARD (2).

## 18. METHODS.

For nephridia of Leeches; BOLSIUS (2). For eyes of Leeches; MAIER, p. 559.

For preserving Oligochæts and Leeches, paralyzing with magnesium chloride and killing with chromic acid recommended; TULLBERG. For preserving Leeches and Polychæts; CUNNINGHAM. For rearing Polychæt larvæ; BLES.

## B.—FAUNISTIC.

## LAND AND FRESHWATER FORMS.

Note on distribution of Oligochæts and Leeches in general; STOLL.

a. *Palæarctic Region.*

British Isles : British Tree- and Earthworms, 6 species of *Allolobophora*, 5 of *Lumbricus* recognized ; FRIEND (2). New British Earthworms and summary of old ones, 21 species recognized ; FRIEND (4) : criticized by HURST & BENHAM (6) : *Lumbricus eiseni* in England ; FRIEND (3). Earthworms of Yorkshire and North Britain ; FRIEND (11, 12) : of Northamptonshire ; FRIEND (6) : of Essex ; FRIEND (1) : of Middlesex ; FRIEND (7) : of Sussex ; FRIEND (10) : of Kent ; FRIEND (5). A new species of Earthworm from Bangor ; FRIEND (9) : from Ireland ; FRIEND (13). *Sparganophilus*, n. g. of *Oligochæt* in the Thames ; BENHAM (3). *Vermiculus*, n. g. of *Oligochæt*, brackish water, Weymouth ; GOODRICH.

Western Europe : distribution of *Photodrilus phosphoreus* in ; MATZDORF (1) and GIARD. *Trochæta subviridis* confined to Western Europe ; BLANCHARD (6).

France : Depts. Vosges and Meurthe as two new stations for *Phreoryctes menkeanus*, Hffmst. ; BRUNOTTE.

Germany.—Mecklenburg Earthworms ; MICHAELSEN (2). Earthworms in the neighbourhood of Berlin (3 species *Lumbricus*, 8 *Allolobophora*, 1 *Criodrilus*, 1 *Allurus*) ; COLLIN, A. (1). Altenar: new genus of *Enchytraeidae* found under moss, *Bryodrilus ehlersi* ; UDE. Saxony : *Nepheleis atomaria*, var. *meyeri*, n. var. ; BLANCHARD (3, III).

Austria.—Bohemia : Leeches and Chaetopods ; KAFKA, FRITSCH & VÁVRA. S. Austria : *Xerobdella lecomtei* in the mountainous regions of ; BLANCHARD (4).

Poland : Leeches and Earthworms of ; NUSBAUM (2). The colours of the Leeches are shown to vary constantly with the locality, and several new varieties are described.

Finnland : 2 Oligochæts ; LEVANDER (2).

Russia and Siberia : Earthworms of ; KULAGIN.

China.—Shan-tong : no Earthworms ever seen there ; FAUVEL. Amoy : *Perichæta aspergillum*, Perrier ; ROSA (1). Foo-chow : *P. sinensis*, n. sp., BEDDARD (9).

Japan : 4 species of *Perichætidae* of which 3 new ; BEDDARD (11). Another new species of *Perichæta* and *P. sieboldii* ; ROSA (1). 3 new species of *Perichæta* and 1 new species of *Moniligaster* ; MICHAELSEN (1).

Liguria : *Trochæta subviridis* recorded in ; BLANCHARD (6).

Sardinia : 1 Leech (*Hæmopsis vorax*) and 2 Oligochæts ; MARCIALIS : *Microscolex modestus* ; ROSA (1). Sicily : *Hormogasta redii* ; ROSA (5).

Algeria and Tunis : *Microscolex algeriensis*, n. sp., and *Allolobophora*

*complanatus* ; BEDDARD (8). Tunis : *Allolobophora festæ*, n. sp., ROSA (5). Tripoli and Egypt : *Allolobophora trapezoides*, Dugés ; ROSA (5).

Madeira : *Microscolex poultoni*, n. sp., BEDDARD (8).

Azores : *Perichæta indica* ; MICHAELSEN (1).

### b. Ethiopian Region.

W. Africa : 4 new species of a new genus, *Gordiodrilus*, of the family *Oenerodrilidæ* ; BEDDARD (3). Togo Land : 5 new species of *Benhamia*, 1 of *Eudrilus* ; MICHAELSEN (1). Valley of Niger : made fertile by *Siphonogaster* ; LOZ. Fernando Po : *Paradrilus rosæ*, Mich. ; ROSA (1).

Central Africa.—Near Victoria Nyanza : 1 new species of *Benhamia*, 2 of *Pygmæodrilus*, 2 of *Siphonogaster* ; MICHAELSEN (2).

S. Africa.—Cape Colony : *Microchæta belli*, n. sp., BENHAM (1) ; *M. rappii*, Bed., ROSA (1) ; *Allolobophora trapezoides*, ROSA (1).

Natal : *Microchæta papillata*, n. sp., BENHAM (1).

Madagascar : *Kynotus michaelsonii*, n. sp., ROSA (4) ; *K. kelleri*, n. sp., MICHAELSEN (1).

Mauritius : *Perichæta mauritiana*, n. sp., BEDDARD (9).

Mahé Island : *Perichæta pentacystis*, n. sp., ROSA (1).

### c. Oriental Region.

Ceylon : *Megascolex templetonianus*, n. sp., ROSA (7) ; *Typhæus lævis*, ROSA, ROSA (1) ; *Perichæta taprobanae*, n. sp., BEDDARD (9).

Burmah and neighbouring Region : List of Oligochaets, including 4 new species of *Perichæta*, 1 of *Perionyx*, of which descriptions are given ; ROSA (2). Bangkok : *Perionyx excavatus* ; ROSA (1). Malacca : a species of *Urochæta* ; ROSA (1).

Singapore : *Perichæta morrisi* (?) notes on ; BEDDARD (9). *Megascolex armatus*, Bed. ; ROSA (1).

Nicobar : *Lumbricus rubellus*, Hffm., and *Allolobophora fetida*, Sav. ; ROSA (1).

Penang : *Perichæta morrisi*, n. sp., BEDDARD (9).

Sumatra : *Desmogaster*, HORST ; *Perichæta longa*, n. sp., MICHAELSEN (1).

Engano : absence of *Perionyx excavatus* and *Megascolex armatus*, and presence of *Perichætidae* much like the Indian ones show Indian character of fauna ; 3 new species and 1 new subspecies of *Perichæta*, and 1 species of *Urochæta* (*U. corethrura*, Müll.) described ; ROSA (3).

Banka : *Perichæta martensi*, n. sp., MICHAELSEN (1).

Java and Borneo : *Perichæta racemosa*, n. sp., ROSA (1). Java : *P. operculata*, n. sp., ROSA (1) ; *P. udekemii*, Gr., MICHAELSEN (1). Borneo : *P. mandhorensis* and *Megascolex pictus*, n. spp., MICHAELSEN (1).

Malay Archipelago generally : 21 species of Earthworms, amongst which are 8 new species, and 2 new genera (*Glyphidrilus* and *Annadrilus*, belonging to the fam. *Geoscolecidae*), gen. *Benhamia*, recorded here for the first time ; HORST.

Philippine Islands.—Luzon : *Perichæta pulchra*, n. sp., *Pleinogaster jagori*, n. g. & sp.; Samar, *Megascolex iris* and *margaritaceus*, n. spp., *Pleinogaster samariensis*, n. g. & sp., MICHAELSEN (1). Cebù : *Perichæta philippina*, n. sp., ROSA (1).

#### d. Australian Region.

New Guinea : *Perichæta neoguinensis*, n. sp., MICHAELSEN (1).

Arù Island : *Microchaeta benhami*, n. sp., ROSA (1).

Australia : *Hæmadipsa* in, as well as in Old World ; STOLL. Queensland : *Perichæta gymptiana*, n. sp., and *Cryptodrilus purpureus* ; SPENCER (2). N. S. Wales : Sydney, *Didymogaster sylvaticus* ; ROSA (1). Victoria : Earthworms of ; SPENCER (3), comprising 11 new species of *Cryptodrilus* (5 from Gippsland), 10 new species and 1 new variety of *Megascolides* (2 of them and the variety from Gippsland), and 2 known species of *Megascolides*.

New Zealand : *Neodrilus monocystis*, Bed., and *Plagiochaeta punctata*, n. g. & sp. ; BENHAM (2).

Tahiti : *Perichæta grubei* and *novaræ*, n. spp. (for *P. taitensis*), ROSA (1).

Marquesas : *Perichæta albida*, n. sp., MICHAELSEN (1). Hawai : *Perichæta hawayana*, n. sp., and *Allolobophora subrubicunda*, Eisen ; ROSA (1).

#### e. Neotropical Region.

Argentine Republic : *Microcolex dubius* ; ROSA (1).

Chili : *Glossiphonia tessellata*, and discussion as to how it got there ; BLANCHARD (2). *Acanthodrilus platurus*, n. sp., MICHAELSEN (1). Chiloe Island : *Acanthodrilus pictus*?, Mich. ; ROSA (1). *A. platurus*, n. sp., MICHAELSEN (1). Valparaiso : "large phosphorescent Earthworm" ; HILLIGER.

Bolivia : Upper reaches (salt) of Pilcomayo R., *Kerria halophila*, n. g. & sp. of fam. *Cryptodrilidæ* ; BEDDARD (10).

Brazil : *Geoscolex maximus* ; ROSA (1). *Tykonus grandis*, n. g. & sp., *Pontodrilus arenæ*, F. Mull. ; MICHAELSEN (1). S. Brazil : *Cylicobdella* ; STOLL.

Venezuela : *Eudrilus roseus*, n. sp., *Benhamia bolavi*, Mich., *Anteus*, 3 n. spp. ; MICHAELSEN (1).

Ecuador : on Cayambe, at height of 14,000 feet, *Rhinodrilus ecuadorensis*, n. sp. ; BENHAM (4).

Guatemala : *Cylicobdella* ; STOLL.

Ciudad Durango : *Benhamia mexicana*, n. sp., ROSA (1).

Dominica : *Gordiodrilus dominicensis*, n. g. & sp., BEDDARD (3).

Barbados : *Perichæta barbadensis*, n. sp., BEDDARD (9).

Jamaica : peculiar Earthworm on trees at Moneague ; ANDREWS (1).

#### f. Nearctic Region.

Bermuda : *Perichæta bermudensis*, n. sp., BEDDARD (9).

Queen Charlotte's Island : *Plutellus perrieri*, n. sp., BENHAM (1).

## MARINE FORMS.

a. *Arctic Ocean.*

Off East Spitzbergen : Polychæts collected by Bremen Expedition, 58 species, with notes on anatomical details of many of them, and with lists of synonyms ; V. MARENZELLER (1).

White Sea.—Solovetzki : Polychæts (pp. 25-27), *A. priapulius* (pp. 24 & 40) ; KNIPOVICHIA.

b. *N. Atlantic Ocean.*

Norway.—N. W. Coast : *Onchnesoma steenstrupii*, n. sp., SHIPLEY. Bergenfjord : Polychæts and Gephyreans ; APPELLÖF.

Baltic Sea.—E. Baltic : 8 species of Polychæts, 2 Gephyreans ; KOJEVNIKOV.

North Sea.—St. Andrew's Bay : *Clymene ebiensis* ; MCINTOSH.

Irish Sea.—Liverpool Bay : 88 species of Polychæts, of which 1 new, 3 others new to Britain, 2 new varieties ; correction of a previous list from the same locality by another author ; separation of species according to their vertical range into littoral, deep water, and indefinite forms, and a table of the geographical and bathymetrical range of the local Polychæts ; HORNELL (1).

English Channel.—Off the Coast of Devonshire : *Staurocephalus rubrovittatus*, *Dinophilus tæniatus* ; GARSTANG (1) : *Protodrilus leuckartii* at Plymouth ; BLES : Polychæts of Plymouth, 63 species, of which 5 new, 2 ? forming new genera, 7 other species new to Britain ; BUCHANAN. Channel Islands : *Sabella saxicava* ; WATSON. Banyuls-sur-Mer : *Eunice gigantea*, 3 metres long, recorded ; LACAZE-DUTHIERS.

Bay of Biscay.—Coast of Loire Inf. : 1 Polychæt and 1 armed Gephyrean ; CAMUS. Santander : 6 species Polychæts and 1 *Phuscolosoma* ; FUSSET.

Mediterranean.—Sardinia : 5 species Polychæts, 2 Gephyreans ; MARTIALIS. Messina : anatomy of 7 new species of *Alciopidae* ; HERING.

Black Sea : 17 species of Polychæts, 1 new genus and 6 new species ; PÉRIASLAVZEFF.

Caribbean Sea.—Jamaica : Sipunculids rare ; Polychæts, no pelagic forms, *Amphinomidae* and *Sabellidae* common, but *Eunicidae* not ; ANDREWS (1).

c. *Indian Ocean.*

Zanzibar : 8 species of Gephyreans (3 new ones of *Thalassema*) ; FISCHER. 1 species *Phymosoma* ; COLLIN, A. (3).

Red Sea : 3 Polychæts ; BOUTAN.

Ceylon : 14 species of Polychæts, including 1 new genus and 4 new species ; MICHAELSEN (4).

Indian Coast : a tubicolor annelid ; KESWELL.

d. *S. Pacific Ocean.*

The Australian species of *Branchellion* ; BLANCHARD (3, VI).

Torres Straits.—Darnley Isl. : *Coppingeria longisetosa*, n. g. & sp. of *Chlorhæmidæ* ; HASWELL (1).

Off Sydney : a second species of *Phoronis* (? = *P. psammophila*, found at Messina), and remarks on other species ; HASWELL (4, I) : two new species of *Stylaroides* ; HASWELL (1).

New Zealand : new species of *Branchellion* occurring on *Raiu nasuta* ; *Dujardinea*, from Port Chalmers ; PARKER.

S. America.—Off Callao : 2 Sipunculids, 1 n. sp. ; COLLIN, A. (3).

C.—SYSTEMATIC.

GENERAL.

HATSCHKE proposes, in a preliminary paper, a new classification of Annelids, dividing them into the 4 Subclasses :—

1. *Archannelida*, including the *Polygordiidae* and *Dinophilidae*.
2. *Chætopoda*, including the *Protochæta* (*Saccocirridæ*), *Polychæta*, and *Oligochæta*.
3. *Hirudinea*.
4. *Echiurida*.

With 2 supplementary groups : (5) the *Sipunculacea*, and (6) the *Chætognatha*. He gives a further classification of the two first subclasses, deriving all Chætopods (and hence the *Hirudinea*) from the *Archannelida*, through the *Protochæta* and *Spionidae*. He gives separate tables of the relations between some of the different families of Errant Polychæts.

1. GEPHYREA (including PHORONIS).

A. PHORONIS.

BLOCHMANN (3) discusses the affinities of the *Brachiopoda*, concluding that they are most nearly related to *Phoronis*. *Phoronis australis*, living in wall of tube of *Cerianthus*, and *P. psammophila* ? in Port Jackson ; HASWELL (4, I).

B. UNARMED GEPHYREANS.

*Aspidosiphon cumingi*, from Zanzibar, remarks on ; FISCHER.

*Cleosiphon aspergillum*, from Zanzibar, remarks on ; FISCHER.

*Dendrostomum peruvianum*, n. sp., Callao, COLLIN, A. (3), anatomy.

*Onchnesoma steenstrupii*, n. sp., N. W. Coast of Norway, SHIPLEY, anatomy and histology. An *Onchnesoma* in the Bergenfjord ; APPELLÖF.

*Phascolosoma catherinæ*, Fr. Müll., Callao, and *P. sanderi*, n. sp., locality ?, COLLIN, A. (3), descriptions.

*Phymosoma granulatum*, from Zanzibar, description ; COLLIN, A. (3).

*P. scolops*, from Zanzibar, description ; FISCHER.

*Priapulus caudatus*, from Solovetzki ; KNĚPOVĚCHA.

*Sipunculus indicus*, Zanzibar, internal anatomy ; FISCHER : conclusions arrived at differ from those of SLUITER [see Zool. Rec. 1891, *Vermes*, p. 22]. *S. camanensis*, also from Zanzibar, description ; FISCHER. Blood of *Sipunculus* ; GRIFFITHS (2) : yellow bodies ; JOURDAIN (2) : coelomic epithelium ; JOURDAIN (3).

### C. ARMED GEPHYREANS.

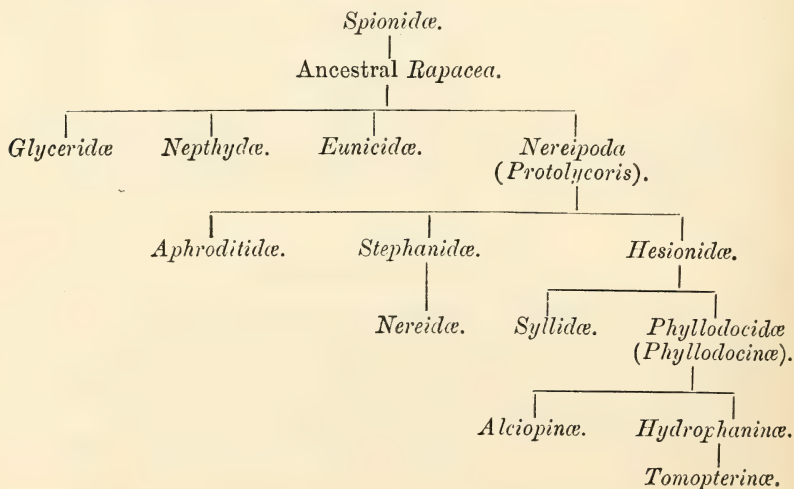
*Bonellia viridis*, from Sardinia ; MARCIALIS.

*Thalassema kokotoniense*, *stuhlmanni*, and *leptodermum*, n. spp., Zanzibar, FISCHER, anatomy. *T. neptuni*, in Bay of Biscay ; CAMUS.

## 2. CHÆTOPODA.

### A. POLYCHÆTA (including DINOPHILUS and PROTODRILUS).

[See above under "General."] HATSCHKE divides the *Polychæta* into the two main groups, *Cirriferæ* (including suborders *Spiomorpha*, *Amphinomorpha*, and *Rapacia* with the *Myzostomidæ* as an appendix) and *Acirra* (including suborders *Drilomorpha*, with *Sternaspidæ* and *Ctenodrilidæ* as appendices, *Terebellomorpha*, and *Serpulimorpha*). He expresses in different trees some of the relations between the different families of *Rapacia* :—



- Agauriles fulgida*, from Ceylon; MICHAELSEN (4).
- Alciopidæ*, of Messina, full anatomy, histology, and synonymy of 7 species; HERING.
- Ampharete grubei*, recorded as British; HORNEILL (1).
- Anaitis*: remarks on the genus and on the species, *A. lineata*, Clp., from which *A. maculata*, n. sp., is distinguished, although both were included by Claparède under the same name; PÉRIASLAVZEFF. *A. wahlbergi*, remarks on genus and species; v. MARENZELLER (1), p. 405.
- Aphrodite oblecta*, recorded as British; BUCHANAN. Blood of *Aphrodite*; GRIFFITHS (2).
- Apomatus globifer*, described and figured; v. MARENZELLER (1), p. 430.
- Arenicola marina*, development; EHLERS (2), HORNEILL (1). Auditory organ of different species of *Arenicola*; EHLERS (1). A Protozoon parasitic on the branchiæ of *A. marina*; MATZDORF (2). Blood of *Arenicola*; GRIFFITHS (2).
- Aricia norwegica*, remarks on previous descriptions; APPELLÖF.
- Autolytus alexandri*, recorded as British; HORNEILL (1), = *A. verrilli*, n. sp., for the (*Stephanosyllis ornata*) of Verrill, described and figured; v. MARENZELLER (1), pp. 416-420. *A. prismaticus*, and *A. sp. ?* (♀ only), from Spitzbergen, descriptions; v. MARENZELLER (1), pp. 420 & 422. *A. ruborittatus*, Clp., Black Sea, remarks on: PÉRIASLAVZEFF.
- Brada inhabilis*, Spitzbergen, description and figure; v. MARENZELLER (1), p. 427.
- Callizona*: detailed description and classification of the genus and its five species, with special anatomy, histology, and figures of *C. angelina*, n. sp.; APSTEIN.
- Capitella multioculata*, n. sp., with 6 pairs of eyes, from Black Sea; PÉRIASLAVZEFF.
- Chaetopterus* tubes containing *Crystallogobius*; APPELLÖF.
- Cirratulus cirratus*, recorded from Spitzbergen; v. MARENZELLER (1).
- C. viridis*, with remarks on the genus, and description and figures of the species; PÉRIASLAVZEFF.
- Clymene ebiensis*, new description of species; MCINTOSH.
- Coppingeria*, n. g. of *Chlorhamidæ* with *C. longisetosa*, n. sp., from Australia, description, anatomy, and figures; HASWELL (1).
- Dasychone herdmanni*, n. sp., Britain; HORNEILL (1).
- Dinophilus tenuatus*, recorded on Devonshire Coast; GARSTANG (1).
- Drieschia*, n. g. of *Polynoidæ*, with *D. pelagica*, n. sp., pelagic, from Ceylon; MICHAELSEN (4), pp. 96-99, description and figures.
- Dujardinia*: from Port Chalmers; PARKER.
- Euchone papillosa*, recorded from Spitzbergen; v. MARENZELLER (1).
- Eulalia velliifera*, recorded from Black Sea; PÉRIASLAVZEFF.
- Eunice gigantea*, recorded from the English Channel; LACAZE-DUTHIERS.
- Eusyllis blomstrandii*, description and figure; v. MARENZELLER (1) p. 411.
- Exogone naidina*, with "lateral buds" on Coast of Devonshire; BUCHANAN.

- Glycera laccadiva*, Schm., Ceylon, description and figure ; MICHAELSEN (4). *G. tessellata*, Gr., from Black Sea ; PÉRIASLAVZEFF. Blood of *Glycera* ; GRIFFITHS (2).
- Haplobranchus* : on Coast of Devonshire ; BUCHANAN.
- Hermadion* : species parasitic on *Echinoderms* ; MATZDORF (3) & CUÉNOT.
- Iphione spinosa*, Kbg., from Ceylon, remarks on ; MICHAELSEN (4), p. 95.
- Lepidonotus acantholepis*, Gv., from Ceylon, remarks on ; MICHAELSEN (4), p. 95.
- Leucodore coeca*, Oerst., living in the Sponge *Microciona* ; HORNELL (2).
- Loimia variegata*, young specimen (?), from Ceylon ; MICHAELSEN (4), p. 109.
- Magalia*, n. sp., and *Mysta*, n. sp., on Devonshire Coast ; BUCHANAN.
- Magelona* : larvæ found on Devonshire Coast ; BUCHANAN, BLES.
- Nectocheta*, n. g. of *Polynoidæ*, with *N. grimaldii*, n. sp., dredged by the "Hirondelle," pelagic, and with extremely long ventral setæ ; v. MARENZELLER (2).
- Nematonereis oculata*, Schm., from Black Sea ; PÉRIASLAVZEFF.
- Nephthys longicornis*, n. sp., with remarks on the genus ; PÉRIASLAVZEFF.
- Nereis longicirra*, Schm., Ceylon, described and figured ; MICHAELSEN (4), pp. 92-102. Blood of *Nereis* ; GRIFFITHS (2). Dissogony in *Nereis* ? ; CHUN. Cell-lineage of *Nereis* ; WILSON.
- Nerilla antennata*, found again, and on British Coasts ; BUCHANAN.
- Ophelina acuminata*, from Spitzbergen, description ; v. MARENZELLER (1).
- Ophryotrocha*, n. sp., or an allied n. g., Coast of Devonshire ; BUCHANAN.
- Pectinaria auricoma* and *belgica*, distinguished from one another ; HORNELL (1).
- Phenacia exilis*, Gr., Ceylon ; MICHAELSEN (4).
- Phyllococe corniculata*, Black Sea ; PÉRIASLAVZEFF. *P. macrolepidota*, Schm., Ceylon ; MICHAELSEN (4).
- Pista*, n. sp., or (?) an allied n. g. ; BUCHANAN.
- Polydora cornuta*, Black Sea ; PÉRIASLAVZEFF.
- Polyophthalmus longisetosus* and *collaris*, n. spp., Ceylon ; MICHAELSEN (1).
- Polynoe haliecti*, var. *hyæne*, n. var., Liverpool Bay ; HORNELL (1). *P. (Lagisca) extenuata*, recorded as British ; HORNELL (1).
- Potamilla neglecta*, recorded from Spitzbergen ; v. MARENZELLER (1).
- Protodrilus leuckartii*, Hatschek, on Devonshire Coast ; BLES.
- Pterocirrus ceylonicus*, n. sp., (? = *Phyllod. (Eulalia) macroceros*, Gr.), Ceylon, described and figured ; MICHAELSEN (4).
- Sabella* and *Serpula*, blood of ; GRIFFITHS (2).
- Sabella pavoina*, var. *bicoronata*, n. var., Liverpool Bay ; HORNELL (1). *S. saxicava*, protective device in ; WATSON.
- Sabellaria bicornis* (*Hermella bicornis*, Schm.) ; MICHAELSEN (4).
- Sabellides*, n. sp., Devonshire Coast ; BUCHANAN.
- Samytha*, n. sp., or an allied n. g., BUCHANAN.
- Scalibregma longisetosum*, from Spitzbergen ; v. MARENZELLER (1).
- Scolecolepis* : species described and figured, from Spitzbergen ; v. MARENZELLER (1).

*Spio mecznikowianus*, Clp., (= *S. decoratus*, Bobr.) and *S. ornatus*, n. sp., from the Black Sea ; PÉRIASLAVZEFF.

"*Spiochætopterus typicus*", of Liverpool Bay, shown to be really *Chætopterus insignis* ; HORNELL (1).

*Staurocephalus chiaji*, Clp., *rudolphi*, D. Ch., and *hyalinus*, n. sp., with remarks on the genus and figure of the new species ; PÉRIASLAVZEFF. *S. rubrovittatus*, on Devonshire Coast ; GARSTANG.

*Stylaroides iris*, n. sp., Ceylon ; MICHAELSEN (4), p. 108, description and figure. *S. cinctus* and *horstii*, n. spp., Australia, description, anatomy, and figure, HASWELL (1). *S. longisetosus*, recorded from Spitzbergen ; v. MARENZELLER (1).

*Terebella* : Blood of ; GRIFFITHS (2).

*Trypanosyllis striata*, n. sp., Black Sea, described and figured, PÉRIASLAVZEFF.

*Typosyllis oerstedti*, Spitzbergen, described and figured ; v. MARENZELLER (1).

*Xenosyllides*, n. g., with *X. violacea*, n. sp., Black Sea, with stiff hairs on each ring of the annulate tentacles and cirri ; PÉRIASLAVZEFF.

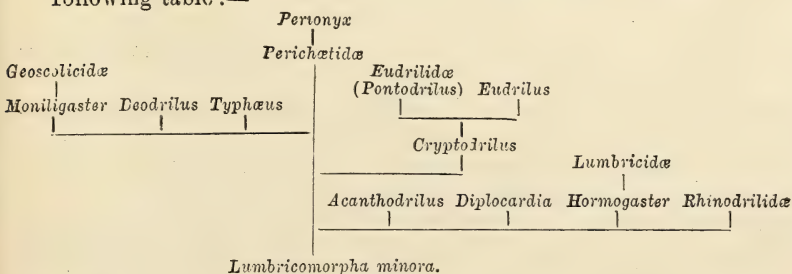
## B. OLIGOCHÆTA (including MYZOSTOMA),

HATSCHKE [see above under "General"] would place the *Ctenodrilidæ*, including *Ælosoma*, with the Polychæts. [Their usual position is retained in this Record.] Schmarda's species of Earthworms renamed ; BEDDARD (2).

ROSA (1) proposes to divide the order *Terricolæ* into the following families :—

- |   |   |                              |
|---|---|------------------------------|
| 1. <i>Moniligastridæ</i> .              | { | I. <i>Cryptodrilinæ</i> .    |
| 2. <i>Lumbricidæ</i> .                  |   | II. <i>Eudrilinæ</i> .       |
| 3. <i>Geoscolicidæ</i> .                |   | III. <i>Acanthodrilinæ</i> . |
| 4. <i>Megascolicidæ</i> , with subfams. |   | IV. <i>Perichætinaæ</i> .    |

GIARD does not consider the mega- or plecto-nephric condition of the nephridia as important in classification. He expresses the relationships between the different members of the *Lumbricomorpha* in the following table :—



*Acanthodrilus schmardæ*, n. sp., BEDDARD (2). *A. pictus*?, Mich., from Chiloe, ROSA (1). *A. multiporus*, development ; BEDDARD (6). *A.*

- spgazzeni*, Rosa, referred to new genus *Kerria* ; BEDDARD (10). *A. platurus*, n. sp., Chili, MICHAELSEN, (1) p. 226.
- Elosoma*, encystment of ; BEDDARD (1) and VEJDOWSKY (1). *E. nireum* serve to connect the genus with the *Naidomorpha* ; BEDDARD (10).
- Allolobophora festæ*, n. sp., near Tunis, description and affinities : discussion of other species ; ROSA (5). *A. smaragdina*, n. sp., description, ROSA (6). *A. complanata*, in Tunisia, BEDDARD (8) ; 8 species from neighbourhood of Berlin, COLLIN, A. (1) ; 3 exotic species, ROSA (1). *A. fetida*, spiral segmentation in ; MORGAN : Gerstfeldt's "*L. brevispinus*" identified with it ; KULAGIN. *A. cantabrica*, n. sp. (Rosa) = "*A. hibernica*, n. sp.," Friend, Ireland and Genoa ; FRIEND (13). "*A. cambrica*, n. sp.," FRIEND (4), shown by HURST & BENHAM to be a variety of *A. chlorotica*, Sav. *A. subrubicunda*, *bockii*, *prefuga*, and a new species of *A. lactea*, in Yorkshire ; FRIEND (11) and (12). 6 species referred to genus *Dendrobæna* ; FRIEND (2). Diagnosis of and classification of genus *Allolobophora* ; FRIEND (1). *A. turgida*, Eisen : 2 varieties in Poland, and 4 other species ; NUSBAUM (2).
- Allurus tetragonurus*, n. sp., Bangor, FRIEND (9). *A. tetraedrus*, near Berlin, COLLIN, A. (1) ; in Britain, FRIEND (1) ; in Poland, NUSBAUM (2).
- Amphichæta*, n. g., a primitive form of the family *Chaetogastridae*, with *A. sannio*, n. sp. ; KALLSTENIUS.
- Annadrilus*, n. g., of family *Geoscolecidae*, with *A. quadrangulus*, n. sp., anatomy ; HORST.
- Anteus heterostichon* for Schmarda's "*Hypogæon heterostichon*," and discussion of genus ; BEDDARD (2). *A. brunneus* (p. 217), *appuni* (p. 218), *callichætus* (p. 220), n. spp., Venezuela, and *papillifer* (p. 214), n. sp., Brazil, MICHAELSEN (1).
- Benhamia* : *annæ*, *floresiana*, and *malayana*, n. spp. in Malay Archipelago ; HORST. *B. mexicana*, n. sp., Mexico, ROSA (1). *B. bolavi*, Mich., in Venezuela, MICHAELSEN, (1) p. 225. *B. itoliensis*, n. sp., by Victoria Nyanza, MICHAELSEN (2). *B. büttneri* (p. 259), *gracilis* (p. 258), *inermis* (p. 209), *pallida* (p. 258), *togoënsis* (p. 260), n. spp., W. Africa, MICHAELSEN (1).
- Branchiura*, n. g. of branchiate Oligochæt, with *B. sowerbyi*, n. sp. ; BEDDARD (4) and (5), anatomy and histology.
- Bryodrillus*, n. g. of *Enchytreidae*, with *B. ehlersi*, n. sp., found at Altenar ; UDE.
- Caecaria*, n. g. of *Naidomorpha*, intermediate between *Stylaria* and *Pristina*, with *C. brevirostris*, *rara*, and *silesiaca*, n. spp. ; FLOERICKE.
- Clitellio* : genus distinct from *Linnodrillus* ; BEDDARD (10).
- Criodrillus lacuum*, near Berlin ; COLLIN, A. (1).
- Cryptodrillus insularis*, n. sp., Arù Is., ROSA (1). *C. dubius*, *frenchi*, *gippslandicus*, *intermedius*, *lucasi*, *macedonensis*, *minor*, *narrensis*, *tanjilensis*, *victoriae*, *willsiensis*, n. spp., from Victoria, SPENCER (3). *C. purpureus*, in Queensland, SPENCER (2).

*Dendrobena rubida*, Sav., a new variety of, occurring in Russia and Siberia, with a list of the 7 species found there ; KULAGIN. Tabular view of 6 British species ; FRIEND (2). *D. boeckii*, in Poland ; NUSBAUM (2).

*Dero* : a species with 6 pairs contractile "lateral hearts" in segments vi-xi ; BEDDARD (10).

*Desmogaster*, in Sumatra, HORST.

*Diachæta littoralis*, n. sp., proposed by BEDDARD, (2) pp. 128-130, for part of Schmarda's *Pontoscolex arenicola*.

*Embolecephalus*, n. g. for *Sænuris velutina*, Gr., and *E. plicatus*, n. sp.: anatomy and histology of both species ; RANDOLPH.

*Eudrilus büttneri*, n. sp. (p. 256), W. Africa, *E. roseus*, n. sp. (p. 224), Venezuela, MICHAELSEN (1).

*Geoscolex maximus*, for Schmarda's *Lumbricus paucisetis* ; BEDDARD, (2) pp. 119-121. *G. maximus*, from Brazil, ROSA (1).

*Glyphidrilus*, n. g. of *Geoscolecidae*, with *G. weberi*, n. sp., Malay Archipelago ; HORST.

*Gordiodrillus*, n. g., provisionally belonging to the family *Ocnodrilidae*, with *G. ditheca*, *elegans*, *robustus*, and *tenuis*, n. spp., from West Africa, and *G. dominicensis*, n. sp., from I. of Dominica ; BEDDARD (3).

(*Hypogæon heterostichon*, Schm.) = *Anteus heterostichon*, (*H. orthostichon*, Schm.) = *Megascolides orthostichon* ; BEDDARD (2).

*Kerria*, n. g., intermediate between the *Acanthodrilidae* and the *Ocnodrilidae*, with *K. halophila*, n. sp., found in very salt water in the upper reaches of the Pilcomayo R. ; BEDDARD (10).

*Kynotus michaelsenii*, n. sp., Madagascar, and remarks on the family *Geoscolecidae* ; ROSA (4). Criticism of the genus, leading to the conclusion that it is closely allied to the genus *Microchæta* ; BENHAM (1). *K. klleri*, n. sp., Madagascar, MICHAELSEN, (1) p. 254.

*Limnodrilus*, distinguished from genus *Clitellio* ; BEDDARD (10).

*Lumbricus* : digestion, GREENWOOD : circulation, GRIFFITHS (1) : blood, GRIFFITHS (2) : intra-epidermal blood vessels, LENHOSSÉK (2) : individual variation in position of nephridio pores, HUBRECHT : spiral metamerism, CORI : nervous system, RETZIUS, CERFONTAINE : origin, course, and termination of the sensory nerve-fibres, LENHOSSÉK (1). (*L. flaviventris*, Leuck.), referred to *L. puter*, Hoffm. ; (*L. triannularis*, Gr.) to *L. rubellus*, Hoffm. ; (*L. brevispinus*, Gerstf.) to *Allolobophora fatida* : KULAGIN. (*L. rubescens*), n. sp., England, FRIEND (2), shown by HURST, and confirmed by BENHAM (2), to be *L. festivus*, Sav. ; (*L. terrestris*), FRIEND (2), shown by HURST to be *L. herculeus*, Sav. HURST gives reasons for discarding the name *L. terrestris* altogether. *L. eiseni*, as a rare British species ; FRIEND (3). 3 species of *Lumbricus* near Berlin ; COLLIN, A. (1). 2 varieties of *L. rubellus* in Poland, and 2 other species ; NUSBAUM (2).

*Megascolex templetonianus*, n. sp., Ceylon, ROSA (7). Schmarda's "*Perichæta cingulata*" and "*P. brachycycla*" referred to genus *Megascolex*,

- and his "*P. leucocycla*" shown to be *M. caruleus*, Bourne; BEDDARD (2). *M. iris* (p. 244), *margaritaceus* (p. 245), n. spp., Samar, *pictus*, n. sp. (p. 246), Borneo; MICHAELSEN (1).
- Megascolides australis*, development of nephridia in; VEJDOWSKY (2). *M. attenuatus*, *cameroni*, *hulmei*, *incertus*, *insignis*, *manni* (with *variabilis*, n. var.), *obscurus*, *roseus*, *sinosus*, *victoriensis*, n. spp., Victoria, SPENCER (3). *M. orthostichon*, for "*Hypogæon orthostichon*," Schmarda; BEDDARD (2).
- Microchaeta belli*, Cape Colony, and *M. papillata*, Natal, n. spp., anatomy; BENHAM (1). *M. belli* is shown to connect Michaelsen's genus *Kerria* with *Microchaeta*. *M. benhami*, n. sp., locality unknown, ROSA, (1) p. 382. *M. rappii*, anatomy, ROSA (1).
- Microscolex algieriensis* (pp. 29-32), Algiers, and *poultoni*, Madeira, n. spp.: anatomy, with discussion of the 2 species; BEDDARD (8).
- Moniligaster japonicus*, n. sp., Japan, MICHAELSEN, (1) p. 232.
- Myzostoma pulvinar* and *alatum*, v. Graff, parasitic on *Antedon phalangium*, amendments to v. Graff's description and discussion of the sexes; PROUHO.
- Nais greefi*, n. sp., intermediate between *N. elinguis* and *N. barbata*; FLOERICKE. *N. parasitica* in *Vivipara unicolor* in Egypt; SONSINO (4).
- Neodrilus monocystis*, Bed., extended description of; BENHAM (2).
- Ophidonais reckii*, n. sp., FLOERICKE.
- Paradrilus rosae*, anatomy, ROSA, (1) p. 393.
- Perichaeta sumatrana*, Horst, *P. dyeri*, *sinensis*, *bermudensis*, *taprobane*, *morrissi*, *barbadensis*, *hesperidum*, *mauritiana*, n. spp., BEDDARD (9), and discussion of external and internal characters which are important in determining species; *P. carinensis*, *bournei*, *campanulata*, *peguana*, n. spp., from Burmah, ROSA (2); *P. rokuko*, n. sp., and 3 other new species from Japan, BEDDARD (11), all with no setæ on clitellar segments, and atria rudimentary. *P. aeliana*, *fasciata*, and *enganensis*, n. spp., with new subspecies *P. enganensis tetra*, Engano, description and anatomy; ROSA (3). *P. dubia* (Sumatra), and *P. minima* (Java), n. spp., HORST. *P. hawayana* (Hawaii), *phillipina* (Cebu), *operculata* (Java), *racemosa* (Java and Borneo), *pentacystis* (Mahé), *ijimæ*, Japan, n. spp., and *P. grubei* and *P. novaræ*, n. spp., Tahiti, to replace *P. taitensis*, which is now destroyed. *P. pulchra*, n. sp. (p. 233), Luzon, *hilgendorfi*, n. sp. (p. 235), Japan, *albida*, n. sp. (p. 237), Marquesas, *longa*, n. sp. (p. 239), Sumatra, *udekemi*, Gr. (p. 240), Java, *mandhorensis*, n. sp. (p. 241), Borneo, *martensi*, n. sp. (p. 242), Banka, *divergens*, n. sp. (p. 243), Japan, and *P. neoguineensis*, n. sp. (p. 229), New Guinea; *P. monilicystis*, n. sp. (from a hothouse in Botanical Gardens, Berlin), *P. pallida*, (p. 227), Brazil, n. sp., MICHAELSEN (1). MICHAELSEN (1) further shows (p. 212) that his *P. heterochaeta* from the Azores is only a synonym of the widely-spread *P. indica*. *P. gympiana*, n. sp., Queensland, SPENCER (2). BEDDARD (2) shows that of Schmarda's *Perichaeta*, only one (*P. viridis*) really belongs to that genus; of the

- others, *P. leucocycla*, *P. cingulata*, and *P. brachycycla*, belong to the genus *Megascolex*; he makes a new species, *P. vitiensis*, for one of Schmarda's specimens labelled, "*Hypogæon* sp., aff. *H. orthostichon*."
- Perionyx excavatus*, E. Perrier; ROSA (1) and (2). *P. arboricola*, n. sp., Burmah; ROSA (2): *P. violaceus*, n. sp., Java, Sumatra; HORST.
- Photodrilus phosphoreus*, geographical distribution and position of; GIARD and MATZDORF (1).
- Phreoryctes menkeanus*, two new localities in the N. E. of France; BRUNOTTE.
- Plagiochaeta*, n. g. of *Acanthodrilidae* with *P. punctata*, n. sp.; BENHAM (2), anatomy and histology.
- Pleionogaster*, n. g. of *Perichætidæ*, with *P. jagori* and *samariensis*, n. spp., Phillipine Is., MICHAELSEN, (1) pp. 247-249.
- Plutellus perrieri*, n. sp., Qu. Charlotte's I., BENHAM (1).
- Pristina longiseta*, notes on; BEDDARD (10): he concludes that *Pristina* and *Naidonina* are no longer to be regarded as distinct species.
- Pontodrilus arenae*, Fr. Müll., Brazil; MICHAELSEN, (1) p. 222.
- Pontoscolex arenicola*, Schm.; BEDDARD (2) retains this name for some of Schmarda's specimens, referring the others to the genus *Diachæta*, proposing for them *D. littoralis*, n. sp.
- Pygmæodrilus bukobensis* and *affinis*, n. spp., near Victoria Nyanza, MICHAELSEN (2).
- Rhinodrilus ecuadorensis*, n. sp., from Ecuador at a height of 14,000 feet, BENHAM (4).
- Siphonogaster* fertilizing the valley of the Niger; LOZ. *S. emini* and *stuhlmanni*, n. spp., and discussion of genus; MICHAELSEN (2).
- Sænuris velutina*, referred to new genus *Embolocephalus*; RANDOLPH.
- Sparganophilus*, n. g. of aquatic Oligochæt belonging to the family *Rhinodrilidæ*, with *S. tamesis*, n. sp., Goring on Thames: anatomy and histology, and discussion of how conveyed to the above locality; BENHAM (3).
- Tykonus*, n. g., allied to *Anteus*, with *T. grandis*, n. sp., Brazil, MICHAELSEN, (1) p. 212.
- Urochaeta corethrura*, at Engano; ROSA (3). *U.* sp. ?, at Malacca; ROSA (1). Abolition of genus; BEDDARD, (2) p. 126.
- Vermiculus*, n. g. of aquatic Oligochæt, with a dense covering of fine hairs or bristles, median atrium of sperm-ducts, and median spermathecal pores. *V. pilosus*, n. sp., Weymouth Coast; GOODRICH.

### 3. HIRUDINEA.

BLANCHARD (4) would divide the Hirudinids into the *HIRUDININA* or fresh-water forms (including *Hirudo*, *Hæmopsis*, *Limnatis*, *Hirudinaria*, *Macrobdella* and *Whitmania*) and the *HÆMADIPSINA* or terrestrial forms (including *Hæmadipsa*, *Moquina* and *Xerobdella*). He discusses (6) the relations between the Nephelids, *Nephelis*, *Dina*, and *Trocheta*.

*Aulastoma*: a palaearctic genus; STOLL: minute structure of eyes; MAIER: salivary glands; LEUCKART (2). *A. gulo*, in Poland, 6 new varieties: *maculata*, *sinuata*, *grubei*, *teniata*, *lithuanica*, *umbrina*; NUSBAUM (2).

*Branchellion punctatum*, Baird, and distinction of the 2 other Australian species; BLANCHARD (3, VI). A specimen described by MACDONALD (Tr. L. S. (2) i, 1876, p. 209), from *Myliobates*, is referred to this species. *B. raja*, ? n. sp., occurring abundantly on *Raja nasuta*, off New Zealand; PARKER.

*Clepsine*: a universal genus, STOLL: minute structure of eyes, MAIER: salivary glands, LEUCKART (2): nephridia, BOLSIUS (2). *C. tessellata*, var. *marmorata*, n. var., Poland, NUSBAUM (2): in the posterior nares of *Cygnus atratus*, and in beak of *Haliastur albicella*, COLLIN, A. (2). *C. hollensis*, n. sp., and its metamerism, WHITMAN. *C. polonica*, n. sp., Poland, NUSBAUM (2).

*Cylicobdella*: confined to tropical new world (S. Brazil and Guatemala); STOLL.

*Glossiphonia*, splitting up of genus foretold; BLANCHARD (3, IV). *G. bioculata* and *catenigera*, geographical distribution: *G. marginata*, description and distribution; BLANCHARD (3, IV). *G. sexoculata*, description, BLANCHARD (3, V), *G. tessellata*, description, synonymy, &c., BLANCHARD (1): in Chili, and its mode of transport thence, with additions to the description of the species, BLANCHARD (2).

*Hæmopsis*: blood; GRIFFITHS (2). *H. sanguisuga*, for Diesing's *Typhlobdella*; BLANCHARD (3, II).

*Hirudo*: minute structure of eyes, MAIER: alimentary canal, HENKING: salivary glands, LEUCKART (2): blood, GRIFFITHS (2). *H. sanguisuga* in the nasal mucous membrane of man; CONDORELLI (4). *H. medicinalis*, 3 varieties in Poland, and 2 intermediate forms between them; NUSBAUM (2). Nephridia, BOLSIUS (2).

*Nephelis*: minute structure of eyes; MAIER. *N. atomaria*, Carena, and *meyeri*, n. var. of it, description, notes on *N. oculata*, Bergm., and short description of *N. gallica* and *N. tergestina*, n. spp., BLANCHARD (3, III). *N. octoculata*, in Poland, and its varieties there, according to locality; NUSBAUM (2): 2 new varieties, and 4 new sub. varieties. *N. vulgaris*, nephridia; BOLSIUS (2).

*Piscicola*: minute structure of eyes, MAIER: salivary glands, LEUCKART (2).

*Trocheta subviridis*, in Liguria, description and geographical distribution; BLANCHARD (6), and relation of genus to other Nephelids.

*Typhlobdella kovátsi*, Diesing, shown to be only a *Hæmopsis sanguisuga* from examination of type specimen; BLANCHARD (3, III).

*Xerobdella lecontei*, description; BLANCHARD (4). It is shown to be a Hirudinid and not a Nephelid, nearest allied to *Hæmadipsa*, especially to *H. japonica*, Whitman. Only 4 pairs of eyes to this, the only species known; 2 orifices in female somite, and an infundibuliform pore on 95th ring, with no homologue in other Leeches.

## III.—PLATYHELMINTHES.

## A.—BIOLOGICAL.

## 1. GENERAL.

The 4th vol. of Bronn's "Klassen und Ordnungen des Thier-reichs," continued in 1892 by MAX BRAUN (4), gives a very full and up to date account of the digenetic Trematodes.

Bibliography of Platyhelminthes; PARONA (1). Parasitism; LOOSS (2). Anatomy and histology of Cestodes of freshwater Fish; KRAEMER (2): these are distinguished from those of warm-blooded Vertebrates by the absence of the rostellum, this being often replaced by a 5th small sucker at the front end of the scolex: excretory and reproductive systems also distinctive. Anatomy and histology of Pelagic Polyclads, v. GRAFF (1); of Triclad, CHICKOFF, HALLEZ (3). Monograph of genus *Microcotyle* (11 species recognized); PARONA & PERUGIA (1). Anatomy of genus *Notocotyle* (only 2 species, *N. alveatum*, Mehlis, and *N. verrucosum*, Fröhl., recognized); MONTICELLI (3). Anatomy and histology of the Monocotylides, SAINT RÉMY (2); of *Cotylogaster michaelis*, n. g. & sp., MONTICELLI (6); of *Monostoma*, MONTICELLI (4) and (5); of *Thysanocephalum*, LINTON (5); of *Stenostoma leucops*, OTT; of *Stychoplana sargassicola*, v. GRAFF (4); of *Temnocephala madagascariensis*, n. sp., with 12 cephalic digitations, and enumeration and discussion of other species, VAYSSIÈRE (1); of *Actinodactylus*, n. g. & sp., with 12 tentacles along the lateral margin of the body radiating from it, with ventral suckers as in *Temnocephala*, and with no eyes, HASWELL (4, III); of *Geonemertes australiensis*, n. sp., DENDY (1); of *Polychærus caudatus* (n. g. & sp. of Acoelous Turbellarian, fam. *Aphanostomidae*), MARK. Anatomy of *Cotyloplana*, n. g. of Land Planarian, with suckers on ventral surface close to anterior extremity; SPENCER (1). On a freshwater Alloicœl Planarian, found in two deep wells 100 miles apart, with no pigment and no eyes; HASWELL (4, II). Anatomy and development of *Amphistomum subclavatum*; LOOSS (1). Account of freshwater Nemertines; VAILLANT, and DE GUERNE (2).

## 2. EPIDERMIS.

ZOGRAF (1) and MONTICELLI (8) both show that there is a true, though much modified, ectoderm present in the adult Cestode, which produces the cuticular layer. ZOGRAF shows, further, that this is the remnant of the ectoderm of the 6-hooked embryo which is not thrown off, but only vacuolised when the ciliated envelope is shed. BRANDES (1) maintains that there is no true ectoderm in adult Trematodes, except perhaps in *Temnocephala*; and that the cuticle is formed by an outer glandular layer of parenchyme cells, which he terms "Ectoparenchyme." BRAUN (3)

criticizes this statement, and shows that, in one *Monostomum* at least, the so-called "cuticle" is itself a metamorphosed ectoderm. HASWELL (5) shows that the ectoderm is ciliated even in the adult of certain species of *Temnocephala*. Large, oval, refractive concretions are described in the ectoderm of a freshwater Nemertine by DU PLESSIS [see also VAILLANT and DE GUERNE (2)]. Ectoderm of Tricladæ; CHICHKOFF.

### 3. MUSCULAR SYSTEM.

Insertion of muscles of parenchyme in *Monostomum proteus*, Brandes; WALTER.

### 4. ALIMENTARY CANAL.

Protoplasmic processes of the alimentary epithelium, by which food is taken in, in *Stenostoma*; OTT. Anterior median branch of alimentary canal over the brain absent in 2 species of *Planocera*; V. GRAFF (1). Multiplicity of pharynx in a Triclad (*Phagocyta*); anastomosis of the two recurrent branches of the alimentary canal in *Dendrocælum*; HALLEZ (2).

### 5. CIRCULATORY SYSTEM.

Hæmoglobin in the body liquid of a Turbellarian (*Syndesmis echinorum*), CUÉNOT. Vascular system only a specialized part of the excretory system in *Geonemertes*; DENDY (1). Distinct from the excretory system in *Enopla*; BÜRGER (1).

### 6. EXCRETORY SYSTEM.

KRAEMER shows that in the Cestodes of Freshwater Fish, the longitudinal vessels of the excretory system all open into a terminal vesicle in the last joint, and by its means open to the exterior posteriorly; anteriorly they communicate with the exterior by means of fine canaliculi, which branch off from a capillary vascular plexus, and lie in the neck and youngest segments. RIEHM shows that in the Cestode *Schistocephalus dimorphus* there is a pair of apertures to the excretory system in each segment; the whole system branches all over the body, and is continuous from segment to segment; he compares the arrangement to that of the tracheæ and stigmata of Insects. WALTER describes a new organ lying round the excretory pore, and opening into the end part of the efferent duct, just in front of the pore, in the genus *Monostomum*. HASWELL (2) shows that the excretory system of *Temnocephala* is intracellular, lying in a few very long and sometimes branching cells; connected with each main duct there is a much-branching system of canaliculi, containing a number of ciliated flames in the substance of the perforated cell which forms the

thick protoplasmic walls of a contractile terminal sac on each side; each sac opens to the exterior anteriorly and dorsally by pores in the same position as in many other Trematodes. DENDY (1) shows that the excretory system of his new Land Nemertine, *Geonemertes australiensis*, is also intracellular, and that the tubules end in flame cells: he did not succeed in finding apertures to the exterior. BÜRGER (1) shows that in the *Enopla* the epithelium lining the excretory canals is ciliated, and that the canals end in hollow blind swellings, also one cell layered, with a flame of cilia projecting into the lumen; the vascular system, though close to the excretory system, is not in communication with it. VOIGT (2) shows that in *Mesostomum truncatum* the efferent excretory ducts, instead of opening into the pharynx, open independently on the ventral surface; he would therefore make this species into a new genus. SEKERA, however, shows that in other species of *Mesostomum*, e. g., *M. rostratum*, the excretory pores are also independent of the pharynx. He also shows that the genus *Bothrioplana* has excretory organs of the Mesostomid type.

#### 7. ORGANS OF UNCERTAIN FUNCTION AND NOT IN CONNECTION WITH OTHER SYSTEMS.

Sommer's "Plasmatic vessels," rediscovered and described in *Tenia saginata* and *T. solium*; BLOCHMANN (1). Curious bodies in the anterior part of the segments of *T. expansa* = "interproglottidal" glands; STILES (8). [See also under "Excretory System;" WALTER.]

Unicellular glands of *Tennocephalu* ducts shown to branch in the protoplasm; HASWELL (2).

#### 8. NERVOUS SYSTEM AND SENSE ORGANS.

Complete decentralisation of nervous system in *Planocera grubei*, n. sp., and approach to it in *P. simrothi*, n. sp.; V. GRAFF (1).

Nervous system of *Distomas*; CRETY: suckers shown to be especially well supplied with nerves, and therefore probably to serve as tactile organs. Eyes shown to multiply by division in a Land Nemertine; DENDY (1).

#### 9. GENITAL SYSTEM.

Vitelline nuclei are shown to exist in the ova of *Distomum richardii* by MONTICELLI (2), and by CRETY (2). MONTICELLI also finds them in *D. veliporum*; he concludes that they are produced by the cytoplasm, and probably serve as a centre for the formation of yolk, having no intimate connection with the nucleus, and playing no part in the process of fertilization. CRETY compares them to the diffuse granules in the ova of *D. megastomum*; he regards them as formed endogenously within the cell, and afterwards fusing with its protoplasm; he compares them with the similar structures in the ova of other animals. Spermatogenesis in Trematodes is dealt with by MONTICELLI (1).

SAINT REMY (3) describes the genital apparatus of the *Tristomidae* (including under that head the *Tristomidae* proper, the *Monocotylidae*, and the *Udonellidae*). He suggests that the canal of Laurer of the *Digenia* may be homologized with the vitello-intestinal canal of the *Polystomidae*; the vagina, with which it is usually homologized, is in Tristomids developed as a female copulatory organ, either single or paired, but probably originally paired. BRAUN (3) describes a genital atrium in an *Amphistomum*, and suggests that the large sac present in the genus *Gastrothylax* is an enlargement of such an atrium, and serves as a brood-pouch.

[Abnormalities in the genital apparatus of *Distomum hepaticum*, see under "Variations."]

The female genital apparatus of *Amphilina* and *Caryophyllaeus* is explained by MONTICELLI (9). KRAEMER (1) and (2) shows that in the Tæniæ of freshwater fishes the female genital aperture is in front of the male; on the female duct are a number of loops, serving as receptaculæ seminales; the position and form of the yolk-glands is different to what it is in Tæniæ of warm-blooded Vertebrates. FILIPPI describes the formation of the ovigerous capsule in *T. botrioplitis*; the eggs appear to be fertilised in the ovary in this species, as there is no uterus or seminal vesicle; he thinks it probable that the proglottids are self-fertilised. DIAMARE describes the genital apparatus of *Dipylidium*.

V. GRAFF (1) confirms Lang's view as to the origin of the gonads from the intestinal epithelium in pelagic Polyclads; he also shows that the uterus is formed from the ectoderm in one species at least; that the accessory vesicle of the ♀ genital duct is a seminal vesicle; that there is a female as well as a male copulatory arrangement in two species; that the relative positions of oviduct and shell-gland are different to what they are in non-pelagic Polyclads. The uterus of the Tricladæ is dealt with fully by BERGENDAL (8) and (5).

## 10. REPRODUCTION, DEVELOPMENT, AND LIFE-HISTORY.

Reproduction by transverse fission is described in *Bipalium kewense* by BERGENDAL (7). VOIGT (1) questions the viviparity of *Planaria alpina*, maintained by Zschokke.

Development of Cestodes and Trematodes compared; SAINT RÉMY (5).

GRASSI & ROVELLI discuss fully the embryology and life-history of the Cestodes, comparing them with one another and with other *Platyhelminthes*; they find that the cysticeroid in *Tenia elliptica* has a simple and direct development; 1 species, *T. nana* s. *murina*, has no intermediate host, and thinks that all Tæniæ originally had but one host. The cysticeri of 8 species of *Tenia* are dealt with by v. LINSTOW (3). RAILLIET & LUCET (1) point out that *Davainea proglottina* must have some other intermediate host than *Limax*: GIARD & BILLET that *Distomum hepaticum* must have some other host than *Limneus truncatulus*, in Tonkin: MAGALHÃES that *Tenia cuneata* must have some other intermediate host than *Allolobophora fetida* in Brazil. MONIEZ (1, XI)

describes a curious larval appendage, over a metre in length, apparently forming a network in the tissue of its host when protruded, in *Gymnorhynchus reptans*; he compares it to an appendage found on several Cestodes of the type of *T. serrata*.

The cercaria of *Amphistomum subclavatum* is dealt with by LOOSS (1), and LANG. LOOSS deals with the whole development, showing how the redia is directly derived from a single organ of the embryo, and the cercaria in the same way from the redia; he regards the development as a metamorphosis, no pædogenesis coming in, and the germinal epithelium of the adult being formed from the elements not used in the development of organs of the embryo, and producing not only the genital organs of the redia and cercaria, but also, in an intermediate stage, an epithelial lining for the body cavity. LANG shows that the cercaria, escaping from *Planorbis contortus*, becomes first encysted on the skin of the young frog, and that only when this skin is shed and eaten by the frog does the animal reach its final habitat and development continue. The embryo of *Gynecophorus hamatobius* is dealt with by RAILLIET (3), and by CAHIER; of *Gyrodactylus elegans* and 5 species of *Distoma*, by VON LINSTOW (3). The development of *Distomum caudatum*, by BLOCHMANN (2); a cyst phase of development in *D. baraldii*, n. sp., by SONSINO (2). Life-history of *Distomum hepaticum*; LUTZ: it is shown that *Limnæus pereger* (= *L. calmensis*) may be an intermediate host.

HALLEZ (1) shows that all the *Turbellaria diploblastica* (Rhabdocæls and Tricladæ) have a provisional terminal larval pharynx with no sheath; and that the position of the adult pharynx is determined, after the flattening of the larva on its oral surface, by the relative amount of growth of an anterior and a posterior hemisphere; where the pharynx is posterior (e.g., Tricladæ and *Monotus fuscus*) in the adult, stages are gone through in which it is first anterior and then median; the flattening of the body accompanies the backward movement of the pharynx, i.e., the greater amount of movement of the cephalic as compared with the caudal hemisphere.

## 11. VARIATIONS.

CONDORELLI (1) gives examples of different kinds of anomalies in Cestodes, referring especially to a *Tænia solium* in which the hooks were absent and replaced by twelve large papillæ resembling those of some Nematodes. RAILLIET (2, I) describes a specimen of *Cysticercus pisiformis* with as many as six suckers. RAILLIET & LUCET (1) mention the variation in number of segments in *Davainea proglottina*. RAILLIET (2, III) records instances of fenestration of segments in *Dipylidium caninum*. WALTER mentions variations in the development of *Monostomum reticulare* from the embryo.

Asymmetry of organs is mentioned by STILES (8) in *Tænia giardi*. SPENGEL describes one specimen of *Distomum hepaticum* with no male genital organs, and another with the anterior half of the right vitellarium absent and the duct on the left side only.

## 12. CLASSIFICATION, &amp;c.

Classification of Cestodes, GRASSI & ROVELLI, VILLOT (1), MONTICELLI (10). MONTICELLI (4) proposes the name "Cestodaria," for the simple unjointed monogenetic Cestodes, *Gyrocotyle*, *Amphilina*, *Caryophylleus*, and *Archigetes*. Current ideas on the relations between Cestodes and Trematodes; SAINT REMY (5). RAILLIET (2, VII) proposes a classification for Bird *Tænia*s, dividing them into 4 genera. STILES (9) discusses Blanchard's genus *Moniezia*.

MONTICELLI (6) proposes a new classification of Trematodes, and discusses the family *Aspidobothridæ*. The affinities and arrangement of the *Monostomidæ* is discussed by MONTICELLI (5), (4), and (3); and by BRANDES (2). Brandes would exclude the genus *Didymozoon* from the family; he refers several so-called species of *Monostomum* to other genera. The position of *Temnocephala* is dealt with by HASWELL (3), and by VAYSSIÈRE (1).

The Nemertines of the Gulf of Naples are classified, and a genealogical tree is given to show their relationships, by BÜRGER (2).

A new classification of Turbellarians is proposed by HALLEZ (3), and a further one of the Triclad's, (3) and (4). He discusses (3) the affinities of the Triclad's with the Alloiocoels and the laws of morphogeny of the Turbellarians generally. BERGENDAL (1) classifies and discusses the affinities of the Swedish Triclad's. V. GRAFF shows that Weldon's *Haplo-discus piliger* is an acœlous Turbellarian.

[For further details, see Systematic part of Record.]

## 13. DISTRIBUTION OF PARASITES ACCORDING TO THEIR HOSTS.

*a. General.*

Distribution of Cestodes and Trematodes, according to various hosts, STOSSICH (4); Trematodes and Cestodes of Mecklenburg and their hosts, BRAUN (5).

*b. Man.*

*Tænia diminuta*, *Cysticercus cellulosæ*, *Distomum lanceolatum*; ZSCHOKKE (2). *Echinococcus*; SANGALLI, SCHULTÉN, & HOMEN (in liver and mesentery), KINYOUN (in kidneys, liver, and bladder); multi-locular form in bladder, HUBER (2): in brain, MUDD: in liver, MANGOLD. *Cysticercus*, living in lens of eye; GRAEFE. Synopsis of exotic Entozoa of Man; SONSINO (1). Bibliography of human Cestodes; HUBER (1). Parasites from Man to Animals, and vice versa; RAILLIET (1).

*c. Other Mammals.*

Monograph of Distomids in Mammals; STOSSICH (1). In Domestic Animals; NEUMANN, DEWITZ, CURTICE. In Cattle and Sheep, *Tænia*s; STILES (3), *Echinococcus multilocularis*; STILES (4). In anal

gland of Dog, *Dipylidium caninum*; RAILLIET (2, IV). In Cat, *Dipylidium trinchesei*, n. sp., DIAMARE. In Kid and Antelope, *Cysticercus tenuicollis*; RAILLIET (2, V & VI). In Hyrax, a *Tænia*; SETTI. In *Stenorhynchus* (*Ogmorhinus*) *leptonyx*, *Bothriocephalus quadratus*, n. sp., V. LINSTOW (4). In Rabbit, *Anoplocephala caniculi*; RAILLIET (2, V & VI). In Dolphin, *Tænia forsteri* (= *Prosthecocotyle*, n. g.); MONTICELLI (7). In Seal (*Cystophora*) *Bothriocephalus tectus*, n. sp., LINSTOW (4). In *Balenoptera*, *Distomum goliath*; LÖNNBERG (1). In Hedgehog, *D. caudatum* and *Trichosoma exiguum*; BLOCHMANN (2).

#### d. Birds.

Monograph of Distomids in Birds; STOSSICH (2). *Tænia*s of Birds, notes on; LINTON (1), V. LINSTOW (2): classification of; RAILLIET (2, VII). Revision of Monostomids parasitic in *Grallide* and *Palmipeds*; MONTICELLI (5): of *Notocotyle* in ditto; MONTICELLI (3).

In Duck, *Echinocotyle rosseteri*, n. g. & sp., with 10 hooks and armed suckers, ROSSETER. In Fowl, *Davainea proglottina*; RAILLIET & LUCET (1). In Pigeon, *Tænia delafondi*; RAILLIET (5).

#### e. Snakes.

*Distomum subflavum* and *baraldii*, n. spp., in *Zamenis viridiflavus*; SONSINO (2).

#### f. Fish.

Parasites of Freshwater Fish; ZSCHOKKE (3). Anatomy and histology of *Tænia* of Freshwater Fish; KRAEMER. Fish in which genus *Microcotyle* found; PARONA & PERUGIA (1). *Lamna corumbica* with a n. g. & sp. of Cestode, *Ceratobothrium xanthocephalum*; MONTICELLI (5). *Scorpena porcus* with *Bothriocephalus caudatus*; MARCIALIS. *Coregonus muræna* with cysts of a *Distomum* in wall of heart; ZACHARIAS. *Box salpa* with 2 species of *Monostomum*, of which one new; MONTICELLI (5). Trematodes ectoparasitic on different fish; PARONA & PERUGIA (2). Monogenetic Trematodes of Roscoff, and the fish on which they are found; SAINT RÉMY (4). Transitory parasitism of a Triclad Turbellarian on the larva of a fish; VOGT.

#### g. Molluscs.

*Cercarie* in (chiefly) Gasteropods of Egyptian wells; SONSINO (4). A new *Cercaria* in *Limnæus truncatulus*, V. LINSTOW (3): in *Donax anatinum* (*C. pectinata*), HUET. *Helix hortensis*, the intermediate host for *Distomum caudatum*; BLOCHMANN (2). *Limnæus pereger* (= *L. calmensis*), an intermediate host for *D. hepaticum*; LUTZ. LUTZ also gives interesting details with regard to the effect of the parasites on the snails, the mortality of the latter, &c.

*h. Crustaceans.*

In Crayfish, a Distomum (? *D. nodulosum*); LINTON (2). In *Astacoides*, a n. sp. of *Temnocephala*; VAYSSIÈRE (1). In branchial cavity of a land Crayfish, *Actinodactylus*, n. g. of *Temnocephaleæ*; HASWELL (4). In *Cyclops brevicaudatus* and *crassicornis*, the cysticeri of *Tænia setigera* of the Goose and *T. brachycephala* of Machetes, respectively; v. LINSTOW (2). In a Freshwater Calanid (*Eurytemora lacinulata*) a Cysticeroid resembling the one found by Mrazek in *Cyclops agilis* (Zool. Rec. 1891, *Vermes*, p. 19); RICHARD. In *Cypris cinerea*, the Cysticerus, with 10 hooks and armed suckers, of *Echinocotyle rosseteri*, n. g. & sp.; ROSSETER.

*i. Echinoderms.*

On *Synapta*, cysts of Cercaria of *Distomum leptosomum*. In Ophiurids, *Cercaria capriciosa*, n. sp. ?; MATZDORF (3), CUÉNOT. On *Echinus*, *Syndesmis echinorum*; CUÉNOT.

*j. Plants.*

Cestodes and Trematodes in; BOS (1).

## 14. STRAY MEDICAL NOTES.

Infectious diseases of animals which can be transmitted to Man, and vice versa; PERRONCITO (*Tænia mediocanellata* chiefly dealt with in this respect); also RAILLIET (1). Study of *T. litterata*; CONDORELLI (5). Prismatic variety of *T. saginata*; COATS. Increase of *Tenias* in France during the last half century; BÉRANGER-FERAND (1). Relative frequency of different species of *Tænia*; COLLIN, G. *Bothriocephalus latus* in Holland; CATHE. Cysticerus in eye and its removal; GRAEFE, SEYFERT. Morbid phenomena caused by *Bilharzia hæmatobia*; COLLORIDI. Retention of toxins in intestine, and consequent poisoning, by intestinal worms; VONCKEN. Cases of *Echinococcus*; PUKY. *Tænia* disease in Man; BÉRANGER-FERAND (3).

[See also under 13, *b. Man.*]

## 15. METHODS, &amp;c.

Experiments for keeping Cestodes alive; LÖNNBERG (2). Methods of preparing Cestodes for histological work; LINTON (5), GRASSI & ROVELLI: of injecting excretory system in Cestodes; RIEHM. DENDY (1) recommends the use of chloroform vapour before immersion in spirit for fixing Land Nemertines. CHICHKOFF suggests a new fixing reagent for Turbellarians, similar to Lang's, but with different proportions of the constituents, and with nitric acid added; he finds that he can fix specimens, well extended, in this way. JOUBIN recommends quick plunging into boiling water for killing Nemertines; TULLBERG, paralyzing with  $MgCl_2$  and killing with chromic acid, for Nemertines and Planarians; see also CUNNINGHAM.

## B.—FAUNISTIC.

## 1. PARASITIC FORMS.

Geographical distribution of exotic Entozoa of Man; SONSINO: of *Tænias* of Man; BÉRANGER-FERAND (2).

a. *Palæarctic Region.*

Sweden: distribution of *Bothriocephalus latus* in; LÖNNBERG (3).

West Europe: distribution of *Tenia saginata* in; BLANCHARD (5).  
Large American Distomum in Europe; LEUCKART (1).

France: decrease of *T. solium* and increase of *T. mediocanellata* during the last half century, BÉRANGER-FERAND (1). Bois de Boulogne: Cysticercoid in a Freshwater Calanid; RICHARD. Roscoff: Monogenetic Trematodes; SAINT RÉMY (4), including 1 new species on the Sole.

Mecklenburg: Parasitic Worms, 6 genera and species of monogenetic Trematodes, 6 genera and 31 species of digenetic Trematodes, 9 genera and 30 species of Cestodes; BRAUN (5).

S. Germany, Switzerland, and Austria: Restriction of multilocular *Echinococcus* to; MANGOLD: in Würtemberg; VIERORDT.

Sardinia: *T. solium*, *T. cœnurus*, and *Bothriocephalus angustatus*; MARCIALIS.

Tunis: *Bilharzia* in; CAHIER, VILLENEUVE.

Egypt: parasites of freshwater Molluscs; SONSINO (4).

b. *Ethiopian Region.*

Madagascar: *Temnocephala madagascariensis*, n. sp., in an *Astacoides*; geographical distribution of genus discussed; VAYSSIÈRE.

c. *Oriental Region.*

Tonkin: Trematode parasites of oxen, *Homalogaster poirieri*, n. sp., *Distomum celomaticum*, n. sp., and *D. hepaticum*, whose intermediate host there is unknown; GIARD & BILLET.

d. *Australian Region.*

Gippsland: *Actinodactylus*, a new genus of *Temnocephalidæ*; HASWELL (4, III). Distribution of genus *Temnocephala*; VAYSSIÈRE.

e. *Neotropical Region.*

South Georgia: *Bothriocephalus quadratus* and *tectus*, n. spp., and a species of *Tenia*; v. LINSTOW (4).

Brazil: *Tenia cuneata*: intermediate host in this region unknown; MAGALHÃES.

f. *Nearctic Region.*

Texas: (*Distomum texanicum*), n. sp., Francis, shown to = *F. americanum*, Hassal, wh. ? = *D. magnum*, Bassi; STILES (6). Distribution of large American *Distomum*; LEUCKART.

## 2. FREE-LIVING LAND AND FRESHWATER FORMS.

Geographical distribution of Land Planarians; STOLL.

a. *Palæarctic Region.*

Geographical distribution of Freshwater Nemertines; GUERNE (2). *Rhynchodesmus* in Europe; STOLL.

England: Freshwater Nemertine (in the Cherwell); BENHAM (5).

S. Germany: distribution of *Planaria alpina* and *gonocephala*; VOIGT (3).

Bohemia: Freshwater Turbellarians; KAFKA, FRITSCH & VAVRA.

Poland: 11 species of Rhabdocoels; NUSBAUM (2): 7 of the same and 6 more species of Rhabdocoels; WASSILIEFF: 1 species of *Vortex*, new.

Russia: 7 species of Turbellarians near Moscow not found there before; ZYKOFF: only one Dendrocoel (a *Polycelis*) there. Solovetzki: Nemertines; KNIPOVICH, p. 25. Finland: a Rhabdocoel; LEVANDER (2).

Sweden: Triclad s enumerated, and several species discussed, including *Polypostia similis*, n. g. & sp.; BERGENDAL (1).

Spain: 2 Turbellarians from Santander; FUSSET.

E. Asia: *Bipalium*; STOLL.

b. *Ethiopian Region.*

Madagascar: *Bipalium*; STOLL. *Temnocephala* [see above, under "Parasitic Forms"].

c. *Oriental Region.*

Ceylon: *Rhynchodesmus*; STOLL.

d. *Australian Region.*

Distribution of *Geonemertes australiensis*, n. sp.; DENDY (1).

Queensland: *Geoplana regina*, n. sp., *G. cœrulea*, *Bipalium kewense*; SPENCER (2), DENDY (2). DENDY also records 2 other species of *Geoplana* and 1 of *Rhynchodesmus*.

S. Australia: *Geoplana fletcheri*, and a new variety of it, var. *adelaiddensis*, from Adelaide; DENDY (3).

Tasmania: 4 species of *Geoplana*, not known to occur there before, one of which new; DENDY (3).

New Zealand: in the underground waters near Canterbury, an alloio-coel Turbellarian.

Lord Howe Island : *Geoplana* absent, and in its place a new genus of Land Planarians, *Cotyloplana*, with new species, *whiteleggi* and *punctata* ; 6 new species of *Rhynchodesmus* ; SPENCER (1).

Fiji Isles, Friendly Isles, and Samoa : as original habitat of *Bipalium kewense* ; BELL.

#### e. Neotropical Region.

S. America : *Bipalium kewense* ; COLLIN, A. (2).

Chili, Brazil, Guatemala : *Polycladus* ; Brazil : *Geoplana* ; STOLL.

Jamaica : Freshwater Planarians and Nemertines, 1 Land Planarian ; ANDREWS (1).

#### f. Nearctic Region.

*Rhynchodesmus* in N. America ; STOLL.

### 3. MARINE FORMS.

Geographical distribution of Pelagic Polyclads ; v. GRAFF (1).

E. Baltic : 17 Turbellarians, 8 Nemertines recorded from, and the problems for further exploration of the fauna dealt with ; KOJEVNIKOV.

English Channel : *Carinella polymorpha* and *Cerebratulus aurantiacus* on the Coast of Devonshire ; GARSTANG (1).

Mediterranean : Nemertines of Gulf of Naples, BÜRGER (2), 65 species of which 28 are new ; 1 new genus, *Hubrechtia*.

Atlantic : *Planocera simrothi* (between I. of Ascension and Equator) and *P. grubei*, n. spp. ; v. GRAFF (1). Sargossa Sea : *Stylchoplana sargossicola* ; v. GRAFF (4) and (1).

S. Indian Ocean : *Planocera grubei*, n. sp. ; v. GRAFF (1).

Pacific Ocean.—Off New Guinea : *Stylchoplana sargossicola* ; v. GRAFF (4) and (1) : *Planctoplana challengerii*, n. g. & sp. ; v. GRAFF (1). Off Noumea : *Eupolia brockii*, *Cerebratulus caledonicus*, *bicornis*, *anas*, n. spp., *Eunemertes francisca*, n. sp. ; JOUBIN & FRANÇOIS.

### C.—SYSTEMATIC.

#### 1. CESTODA.

Affinities with other *Platyhelminths* discussed by GRASSI & ROVELLI, who also discuss affinities of Cestodes amongst themselves, criticizing VILLOT's classification of the cystic forms into *Cysticerci*, *Cysticercoides*, and *Pseudocystici*. VILLOT maintains his classification. MONTICELLI (10) proposes the following classification :—

#### Order CESTODA.

##### I. Subord. ATOMIOSOMA.

Fam. 1. *Diplocotyliidae*, Montic.

Fam. 2. *Tricuspidaridae*, Montic.

## II. Subord. TOMIOSOMA.

Tr. A. *Atrypanorhyncha*.*Monossichionia*—Fam. 3. *Cyathobothridæ*, Montic.*Dissichionia*—

{	Fam. 4. <i>Pseudobothridæ</i> , Montic.
	Fam. 5. <i>Dibothridæ</i> , Dies.

*Tetrassichionia*—

{	Fam. 6. <i>Tetrabothridæ</i> , Dies.
	Fam. 7. <i>Tetracotylidæ</i> , Dies.

Tr. F. *Prypanorhyncha*.Fam. 8. *Tetrarhynchidæ*.

MONTICELLI (9) proposes name *Cestodaria* for the genera *Gyrocotyle*, *Amphilina*, *Caryophyllæus*, and *Archigetes*, intermediate between Trematodes and Cestodes.

*Adult Forms.*

*Amphilina* referred to suborder *Cestodaria*, and *A. ligulidea*, anatomy ; MONTICELLI (9).

*Anoplocephala cuniculi* : bronze coloured specimen in rabbit ; RAILLIET (2, II).

*Archigetes* referred to suborder *Cestodaria* ; MONTICELLI (9).

*Bothrimonus*, Duv., synonymy of ; MONTICELLI (10).

*Bothriocephalus latus* : in Sweden, LÖNNBERG : in Holland, CATHE. *B. angustatus* in *Scorpena porcus*, in Sardinia ; MARCIALIS. *B. quadratus* in *Stenorhynchus leptonyx*, and *B. tectus* in *Cystophora probiscidea*, n. spp., S. Georgia ; v. LINSTOW (4). (*B. longicollis*) Molin., = *Bothriotenia*, n. g. ; RAILLIET (2, VII).

*Bothriotenia*, n. g. for (*Bothriocephalus longicollis*) ; RAILLIET (2, VII).

*Caryophyllæus* referred to suborder *Cestodaria*, and *C. tuba*, anatomy ; MONTICELLI (9).

*Ceratobothrium*, n. g., with *C. xanthocephalum*, n. sp. ; MONTICELLI (7).

*Davainea proglottina* : some other intermediate host than *Limax*, and variations according to locality ; RAILLIET & LUCET (1).

*Dibothriorhynchus monticellii*, n. sp. ; MONIEZ (1, XII).

*Dicranotenia*, n. g. for Bird Tænia ; RAILLIET (2, VII).

*Dipylidium caninum*, with fenestrated segments ; RAILLIET (2, III) : in the anal glands of the dog ; RAILLIET (2, IV). *D. trinchessii*, n. sp., from cat ; DIAMARE.

*Drepanidotenia*, n. g. for Bird Tænia ; RAILLIET (2, VII).

*Echinococcus hominis* : KINYONN, SANGALLI, SCHALTÉN & HAMÉN, PUKY : multilocular variety, MUDD, MANGOLD, VIERORDT, HUBER (2). MANGOLD thinks it has a different cysticercus to the unilocular one.

*Echinocotyle*, n. g., with *E. rosseteri*, n. sp. in duck, cysticercus in *Cypris cinerea* ; ROSSETER.

*Epision*, n. g., with *E. plicatus*, n. sp., LINTON (1) ; but identified with *Tænia malleus*, STILES (10).

*Gymnorhynchus reptans*, curious long larval appendage in, and its migration ; MONIEZ (1, XI).

*Gyrocotyle* referred to suborder *Cestodaria* ; MONTICELLI (9).

*Moniezia* : genus discussed and its different species defined ; STILES (9).

*M. expansa* : notes on anatomy, and distinction of species from others with which it is often confused ; STILES (8). *M. planissima*, n. sp., STILES (8).

*Prosthecotyle*, n. g. for *Tenia forsteri* ; MONTICELLI (7).

*Schistocephalus dimorphus* : excretory canals shown to have a pair of apertures in each segment ; RIEHM.

*Tenia botrioplitis*, Gonads ; FILIPPI. *T. solium* : specimen with hooks replaced by 12 large papillæ ; CONDORELLI (1). *T. saginata* : its occurrence and prevalence in W. Europe in olden times ; BLANCHARD (5) : prismatic variety of ; COATS : Sommer's plasmatic vessel in ; BLOCHMANN. *T. mediocanellata*, as transmitted between man and animals ; PERONCITO. *T. of Hyrax* ; SETTI. *T. litterata*, anatomy ; CONDORELLI (5). *T. filicollis* and *T. torulosa*, anatomy ; KRAEMER (1). *T. serpentulus* and its hosts ; STOSSICH (4). *T. setigera* (of *Anser*), cysticercus found in *Cyclops brevicaudatus* ; *T. brachycephala* (of *Machetes*), cysticercus found in *S. crassicornis* ; v. LINSTOW (2). *T. malleus* : notes on anatomy ; v. LINSTOW (2) : identification of Linton's genus (*Epision*) with it ; STILES (10). *T. cuneata*, in Brazil, with some other intermediate host than *Allolobophora fetida* ; MAGALHÃES (1). *T. tenuirostris* found in goose ; RAILLIET (2, VII). *T. compressa*, *macrocantha*, n. spp., in birds ; LINTON (1). *T. dela-fondi*, n. sp., in pigeon ; RAILLIET (5). *T. vallei*, n. sp. ; STOSSICH (4). *T. sp.*? from a water-bird ; v. LINSTOW (4). *T. imbutiformis* referred to genus *Mesocestoides*, Vaill. ; RAILLIET (2, VII). *T. expansa* referred to genus *Moniezia* ; STILES (9). *T. giardi*, its relations to genus *Moniezia* ; STILES (9) : notes on its anatomy ; STILES (8). *T. lanceolata*, Blochm., made type of a new genus *Drepanidotania* ; *T. coronula* of a new genus *Dicranotania*, RAILLIET (2, VII) ; *T. forsteri* of a new genus *Prosthecotyle*, MONTICELLI (7). *T. (Hymenolepis) diminuta*, very ancient case in man ; RAILLIET (6) : notes on anatomy ; ZSCHOKKE (2).

*Thysanocephalum crispum*, anatomy ; LINTON (5).

### Cystic Forms.

*Cysticercus acanthorhynchæ*, *bifurcæ*, *hamanni*, *integræ*, *tenuirostris*, notes on, and *C. lacertæ*, n. sp. ; v. LINSTOW (3). *C. pisiformis*, specimen with 6 suckers ; RAILLIET (2, I). *C. tenuicollis*, in a 4-6 weeks' old kid ; RAILLIET (2, V) : in the antelope ; RAILLIET (2, VI). *C. cellulose* under the skin of a middle-aged man ; ZSCHOKKE (2). *C.* in liver of hog ; CAPRINI (1, II) : alive in lens of eye ; GRAEFE. Cysticercoid sp. ? in a Freshwater Calanid, *Eurytemora lacinulata* ; RICHARD.

## 2. TREMATODA.

Monograph of *Distomidae* in Mammals; STOSSICH (1) gives list of 61 species, with their various hosts, and of 83 Mammals, with Distomids known to occur in each.

Monograph of *Distomidae* in Birds; STOSSICH (2): carried out on same plan, 64 species.

Histology of Trematodes; BRANDES (1). Anatomy and histology, &c., of Digenetic Trematodes; BRAUN (4).

Synopsis of Monogenetic Trematodes; SAINT RÉMY (1).

MONTICELLI (6) proposes the following classification of Trematodes:—

Subord. I. ETEROCOTYLEA.

Fam. 1. *Temnocephalidae*.

Fam. 2. *Tristomidae*.

Fam. 3. *Monocotylidae*.

Fam. 4. *Polystomidae*.

Fam. 5. *Gyrodactylidae*.

Subord. II. ASPIDOCOTYLEA.

Fam. 6. *Aspidobothridae*.

Suborder III. MALACOCOTYLEA.

Fam. 7. *Holostomidae*.

Fam. 8. *Amphistomidae*.

Fam. 9. *Distomidae*.

Fam. 10. *Didymozoonidae*.

Fam. 11. *Monostomidae*.

He gives a revision of the family *Aspidobothridae*, which he would have include the genera *Aspidogaster*, *Aspidocotyle*, *Platyaspis*, *Macraspis*, and his new genus *Cotylogaster*.

HASWELL (5) in the Macleay Memorial volume of the Linn. Soc. N.S.W., gives a monograph of the family *Temnocephalidae*. In the Abh. Ges. Halle (3) he discusses the position of the family, concluding that, although he considers it to belong to the Trematodes, he could not find fault with anyone classing it as an aberrant family of Rhabdocoels.

BRANDES (2) criticizes MONTICELLI'S classification as far as it affects the *Monostomidae*. He shows that the following species said to belong to the genus *Monostomum* really belong to other genera:—*M. liguloides* is an *Amphiline*; *M. squamata* and *M. spirale* belong to the genus *Distomum*; *M. echinostomum* is a synonym for *D. planicola*, and *M. hystrix* for *D. endolabrum*; *M. cochleariforme* is a *Gasterostomum*; *M. cornu* he is uncertain about. There are then left 24 species belonging to the genus *Monostomum*, which he enumerates and groups.

*Actinodactylus*, n. g. of *Temnocephalea*; HASWELL (4, III) & (5).

*Amphistomum subclavatum*, anatomy and development, LOOSS: description of its cercaria found in *Planorbis contortus*, LANG. *A. conicum*, histology; BRANDES (1). *A. bothriophoron*, n. sp., anatomy, BRAUN (3). *A. scleroporium*, in intestine of *Chelonia viridis*; WALTER.

*Bilharzia hematobia*, in Tunis, VILLENEUVE, CAHIER: eggs and embryo, CAHIER, RAILLIET (3): morbid phenomena caused by it in man, COLLORIDI.

*Culceostoma elegans* and *inermis*, figured and described; PARONA & PERUGIA (2).

*Cotylogaster*, n. g. with *C. michaelis*, n. sp., anatomy; MONTICELLI (6).

*Dactylocotyle taschenbergii*, figured and described; PARONA & PERUGIA (2).

*Distomum caudatum*, development from cercaria, which found in kidney of *Helix hortensis*; BLOCHMANN. *D. echinatum* and *endolobium*, notes on; v. LINSTOW (3). *Distomum* parasitic in *Planocera pellucida* and *simrothi*; v. GRAFF (1). *D. folium*, anatomy, BRAUN (1) and (3): he finds it more normal than Zschokke does. *D. goliath*, v. Ben., from *Balanoptera rostrata*, description; LÖNNBERG. *D. hepaticum*, specimen with genital apparatus abnormal, SPENGLER: life-history, LUTZ: shown to have some other host than *Limnæus truncatulus* in Tonkin; GIARD & BILLET. *D. lanceolatum*, in an Arab, in Alexandria; ZSCHOKKE (2). *D. leptosomum*, cercaria encysted on Holothurians; CUÉNOT, MATZDORF. *D. magnum*, Bassi, STILES (6): *Fasciola carnosæ*, Hassall, identified with it, LEUCKART. *D. nodulosum*, parasitic in Cray-fish; LINTON (2). *D. megastomum* and *richardii*, anatomy of suckers described; CRETY (1). *D. richardii*, Vitelline nucleus in ova, CRETY (2), MONTICELLI (2). *D. veliporum*, Vitelline nucleus in ova; MONTICELLI (2). *D. species*?, Cysts found in walls of heart of *Coregonus muraena*; ZACHARIAS. *D. baraldii*, n. sp. from *Zamenis viridiflavus*, and a stage in its development, description; SONSINO (2). *D. capriciosa*, n. sp.?, (cercaria only), found in gonads and viscera of Ophiurids; CUÉNOT, MATZDORF. *D. calomaticum*, n. sp., in Chinese oxen; GIARD & BILLET. *D. flexum*, n. sp., LINTON (1). *D. pulicis* and *sialidis*, n. spp., v. LINSTOW (3). *D. subflavum*, n. sp., from *Zamenis viridiflavus*; SONSINO (2). (*D. texanicum*), n. sp., FRANCIS, = *D. americanum*, Hassall, STILES (7), which very probably = *D. magnum*, Bassi. (*D. verrucosum*), n. sp., LINTON (1): but name already taken, STILES (10).

*Dibothrium exile*, n. sp., LINTON (1).

*Eurycælum sluiteri*, Brock: suggestion that belong to genus *Apoblema*; BRAUN (2) and (3).

*Fasciola carnosæ*, Hassall, shown to = *Distomum magnum*, Bassi; LEUCKART, STILES (7).

*Gyrodactylus elegans*, notes on; v. LINSTOW (3).

*Holostomum variabile*, description and fig.; LINTON (1).

*Homalogaster poiriei*, n. sp., in Chinese oxen; GIARD & BILLET.

*Microbothrium (Pseudocotyle) apiculatum*, anatomy and histology; SAINT REMY (2) and (3).

*Microcotyle*: monograph of genus, with list of fishes on which the various species are parasitic, anatomy of 11 species; PARONA & PERUGIA (1). *M. salpæ*, n. sp., in Salpa; PARONA & PERUGIA (1).

*Monostomum*: revision of all the species parasitic in Grallids and Pal-mipeds; these are reduced to 3:—*flavum*, *mutabile*, and *sarcidonicola*; MONTICELLI (5). *M. capitellatum*, in Box Salpa, notes on; MONTICELLI (4). (*M. cymbium*) = *M. flavum*, its anatomy and affinities; MONTICELLI (5). *M. mutabile*, Zed., epidermal layer; BRAUN (3). *M. spinosissimum*, St., and *stossichianum*, n. sp., in Box Salpa, notes on; MONTICELLI (4). *M. trigonocephalum*, *reticulare*, and *proteus*, in intestine of *Chelone viridis*, and points in anatomy; WALTER. (*M. ovatum*), Molin., and (*attenuatum*), Rud., = *Notocotyle verrucosum*; MONTICELLI (3). *M. alveatum*, Mehlis? = young of *N. verrucosum*; MONTICELLI (3).

*Notocotyle*: historical sketch, anatomy and systematic, of the genus; MONTICELLI (3): two species (*N. verrucosum* and *N. alveatum*) recognized.

*Octobothrium pollachii* and *chrysophrii* on fish at Roscoff; SAINT RÉMY (4).

*Octocotyle leptogaster* and *thunniæ*, figured and described; PARONA & PERUGIA (2). *O. scombri*, discussion of name; PARONA & PERUGIA (2).

*Onchocotyle appendiculata* and *prenanti* on fish at Roscoff; SAINT RÉMY (4).

*Phyllonella soleae*, gonads, SAINT RÉMY (3): note on, PARONA & PERUGIA (2).

*Plagiopeltis duplicata*, figured and described; PARONA & PERUGIA (2).

*Pseudocotyle squatinæ*, notes on; PARONA & PERUGIA (2).

*Temnocephalæ*: monograph of family, HASWELL (5): position and relationships, HASWELL (3): discussion of genus *Temnocephala*, geographical distribution of species, and habits, VAYSSIÈRE: excretory system, HASWELL (2). *T. madagascariensis*, n. sp., parasitic on *Astacoides madagascariensis*, anatomy and histology, VAYSSIÈRE: three other new species, HASWELL (5) [See also *Actinodactylus*, n. g. of *Temnocephalæ*; HASWELL (4, III) and (5).]

*Tetraonchus van benedenii*, additional description and note on habitat; PARONA & PERUGIA (2).

*Tristomum mole* and *interruptum*, note on occurrence; PARONA & PERUGIA (2).

*Udonella pollachii*, note on occurrence; PARONA & PERUGIA (2) & SAINT RÉMY (4). *U. n. sp.* on *Solea vulgaris*; SAINT RÉMY (4).

#### CERCARIAS.

*Cercaria Limnæa truncatulus*, n. sp., v. LINSTOW (3). *C. pectinata*, n. sp., from *Donax anatinum* (its final host probably being a sea bird), anatomy; HUET. *C. vivax*, ? n. sp., found in *Cleopatra bulminoides*; *C. obscura*, ? n. sp., found in *Limnæa natalensis*; *C. pleurolophocerca*, n. sp., found in *Melania tuberculata* and *Cleopatra bulminoides* (tail with transparent, bilateral, expanded membrane, supported by pro-

cesses resembling setæ, probably the cercaria of an *Amphistomum*); *C. capsularia*, n. sp., in *Cleopatra bulminoides*; *C. pigmentata*, of *Amphistomum* sp. ?; *C. (? agilis*, of Filippi), of *Distomum recurvatum*, v. L., in *Physa alexandrina* and others; *C. distomatosa*, sp. ?, in *Cleopatra bulminoides*; *C. microcotyle*, Fil., *C. costata* and *fusicauda*, La Val. St. G., with the different Molluscs in which they are found : SONSINO (4).

### 3. NEMERTINEA.

BÜRGER (2) proposes the following classification for the Mediterranean forms :—

#### Order A. PROTONEMERTINI.

Genus 1. *Carinina*, with 1 species.

Genus 2. *Carinella*, with 10 species, of which 4 are new.

Genus 3. *Hubrechtia* (n. g.), with 1 species.

#### Order B. MESONEMERTINI.

Genus 4. *Cephalothrix*, with 5 species, of which 3 are new.

Genus 5. *Carinoma*, with 1 species.

Order C. METANEMERTINI [= *Enopla* of M. Schulze. (To be dealt with in a second part of the paper.)]

#### Order D. HETERONEMERTINI.

##### Suborder a. AMICRURÆ.

Genus 6. *Eupolia*, with 4 species.

Genus 7. *Valencinia*, with 2 species, of which 1 is new.

Genus 8. *Ilineus*, with 14 species, of which 9 are new.

Genus 9. *Borlasia*, with 2 species, of which 1 is new.

##### Suborder b. MICRURÆ.

Genus 10. *Micrura*, with 6 species.

Genus 11. *Cerebratulus*, with 18 species, of which 10 are new.

Genus 12. *Langia*, with 1 species.

The relationships are expressed in a genealogical tree.

History of Freshwater Nemertines, their geographical distribution, and their origin; GUERNE (2). Notes on Freshwater Nemertines; VAILLANT.

Nemertines of Noumea; JOUBIN & FRANÇOIS: of the Baltic (8 spp.); KOJEVNIKOV: of Solovetzki; КНИПОВИЧА.

(*Balanocephalus pellucida*), v. Kennel, = *Eupolia pellucida*, v. Ken.; BÜRGER (2).

*Borlesia immaculata*, n. sp., Gulf of Naples, BÜRGER (2).

*Carinella polymorpha*, on the English Coast; RICHES, GARSTANG (1). *C. albida*, *minuta*, *nothus*, *rubicunda*, n. spp., Gulf of Naples, BÜRGER (2.). (*C. annulata*), McInt., = *C. macintoshi*, n. sp.; BÜRGER (2).

*Cephalothrix bipunctata*, *fragilis*, *hymenæus*, n. spp., Gulf of Naples, BÜRGER (2).

*Cerebratulus acutus, aerugatus, anguillula, aureolus, candida, ferrugineus, fuscoides, lividus, notabilis, simulans, ventrosulcatus*, n. spp., Gulf of Naples, BÜRGER (2). *C. anos, bicornis, caledonicus*, n. spp., Noumea, JOUBIN & FRANÇOIS. *C. aurantiacus*, Gr., on Devonshire Coast; GARSTANG (1). (*C. dohrnii*), Hubr., = *Lineus dohrnii*; (*C. geniculatus*), Qfg., = *L. geniculatus*; (*C. grubei*), Hubr., = *L. grubei*; (*C. delle chiaje*), Hubr., = *Micrura delle chiaje*; (*C. tristis*), Hubr., = *Micrura tristis*; BÜRGER (2). *C. aurostriatus*, Bürg., in Noumea: notes on; JOUBIN & FRANÇOIS.

*Eunemertes francisca*, n. sp., Noumea, JOUBIN & FRANÇOIS.

*Eupolia brockii*, Bürg., in Noumea: notes on; JOUBIN & FRANÇOIS.

*Geonemertes australiensis*, n. sp., Australia, DENDY (1).

*Hubrechtia*, n. g. for *H. desiderata*, v. Ken.; BÜRGER (2).

*Lineus coccinus, gelbus, kennelii, lobianki, molochinus, nigricans, parvulus, rufocaudatus, versicolor*, n. spp., Gulf of Naples, BÜRGER (2).

(*Polia geniculatus*), d. Ch. (*Cerebrat. genic.*, Qfg.), = *Lineus geniculatus*; BÜRGER (2).

*Tetраstemma aquarum dulcium* (?), in England; BENHAM. *T. lacustris*, in Lake of Geneva; DU PLESSIS.

*Valencinia blanca*, n. sp., Gulf of Naples, BÜRGER (2).

#### 4. TURBELLARIA.

HALLEZ (4) and (3) would get rid of the Order *Dendrocaela* altogether, and divide the Turbellarians into the following 2 groups:—

1. *Diploblastica*, including the *Rhabdocœlida* of Graff, and the *Triclada* of Lang.
2. *Triploblastica*, including the *Polyclada* of Lang.

He gives in (1) an embryonic law determining the position of the pharynx in the adult for all his "*Diploblastica*," finding that it depends on the relative amount of growth of the cephalic and caudal hemispheres of the larva. He discusses previous classifications, gives laws of Morphogeny of the Turbellarians, and a further classification of the Triclads, while discussing their affinities with the Alloiocœls in (3). In (4) and in (3), the Triclads are divided into 3 tribes, which, with the families included in each, are seen in the following table:—

Order *Triclada*. Tribe 1. MARICOLA.

Fam. i. *Otoplanida*.

Fam. ii. *Procerodida*.

Fam. iii. *Bdellurida*.

Tribe 2. PALUDICOLA.

Fam. iv. *Planarida*.

Fam. v. *Anocelida*.

Fam. vi. *Dendrocaelida*.

## Tribe 3. TERRICOLA.

Fam. vii. *Limacopsida*.Fam. viii. *Geoplanida*.Fam. ix. *Polycladida*.

BERGENDAL (1) would divide the Swedish Triclad's into 2 families :  
A. *Uteriporidae* ; B. *Planariadæ* (including the subfamilies *Planariææ*,  
*Polyclidæ*, and *Gundadæ*).

Anatomy and histology of Triclad's ; CHICHKOFF. Abnormalities in  
Triclad's ; HALLEZ (2). Uterus of Triclad's ; BERGENDAL (6).  
Temporary parasitism of a Triclad ; VOGT. Terrestrial Triclad's  
from Queensland ; DENDY (2) and SPENCER (1) : from Tasmania ;  
DENDY (3) : from Lord Howe I. ; SPENCER (1).

The Pelagic Polyclad's are dealt with very fully by v. GRAFF (1). Lang's  
9 species are reduced to 3, and 2 new ones are added. The anatomy  
and geographical distribution of the group is fully discussed.

Spanish Turbellarians (2 species), FUSSET : Bohemian, FRITSCH &  
VÁVRA (2 + 9 species), KAFKA. Turbellarians of the Baltic (17  
species), KOJEVNIKOF : of Moscow (8 species), ZYKOFF : of Warsaw  
(11 species of Rhabdocœls), NUSBAUM ; (13 species of Rhabdocœls, of  
which only 7 the same as in Nusbaum's list), WASSILIEFF, with notes  
(in Russian) on the various species.

*Bipalium kewense* shown probably to have come originally from the Fiji  
Is. ; BELL : its presence in Queensland ; SPENCER (2), DENDY (2) :  
in Asia and Madagascar ; STOLL : its multiplication by transverse  
fission ; BERGENDAL (5).

*Castrada radiata*, and ? a n. sp., near Warsaw, NUSBAUM.

*Cotyloplana*, n. g., of Land Planarians, with *C. whiteleggi* and *C. punctata*,  
n. spp., Lord Howe I. ; SPENCER (1).

*Dendrocoelum lacteum* and *punctatum*, affinities discussed ; BERGEN-  
DAL (1). *D. nausicææ* : fusion of branches of the alimentary canal ;  
HALLEZ (2).

*Derostoma elongatum*, Gr., and *typhlops*, Vejd., near Warsaw, notes on ;  
WASSILIEFF.

*Geoplana* in Brazil and Tasmania ; STOLL. *G. cœrulea* and *G. regina*,  
n. spp., Queensland, DENDY (2), and SPENCER (2). 4 species in  
Tasmania, 1 in Adelaide, together with a new variety, *G. fletcheri*,  
var. *adelaidensis*.

*Gunda* sp. ?, temporarily encysted in the skin of a young murænid fish ;  
VOGT. *G. ulvæ*, remarks on ; BERGENDAL (1).

*Gyrator hermaphroditus*, Ehrb., near Warsaw ; NUSBAUM : remarks on  
synonymy ; WASSILIEFF.

(*Haplodiscus piliger*), Weld., = a species of *Convoluta* ; v. GRAFF (3).

*Macrostomum hystrix*, near Warsaw ; NUSBAUM : notes on ; WASSILIEFF.

*Mesostomum*, nephridial system ; VOIGT (2), SEKERA. *M. productum*,  
near Warsaw, NUSBAUM ; *M. personatum*, *viridatum*, near Warsaw,  
NUSBAUM, WASSILIEFF (synonymy discussed).

*Microstomum lineare*, near Warsaw ; NUSBAUM : notes on, WASSILIEFF.

*Opisthomum pallidum*, notes on ; WASSILIEFF.

*Olisthanella*, name proposed for n. g. (for *Mesostomum truncatum*) ; VOIGT (2), but see SEKERA.

*Othelosoma symondsii*, anatomy ; v. GRAFF (2).

*Phagocyta*, multiple pharynx ; HALLEZ (2).

*Planaria lactea, montana, polychroa*, n. spp., Middle Europe, anatomy and histology ; CHICHKOFF. *P. alpina*, reproduction ; VOIGT (1).

*P. alpina* and *gonocephala*, distribution ; VOIGT (3). *P. lugubris, polychroa, torva*, notes on ; BERGENDAL (1). (*P. sargossicola*), Martens, = *Stylochoplana sargossicola* ; v. GRAFF (4).

*Planctoplana*, n. g. for *P. challengerii*, n. sp., New Guinea ; v. GRAFF (1), figured and described.

*Planocera pellucida*, Mertens, *P. grubei*, Atlantic and Indian Oceans, *simrothi*, between the I. of Ascension and the Equator, n. spp. ; v. GRAFF (1).

*Polycelis cornuta*, distribution ; VOIGT (3). *P. cornuta, nigra*, and *tenuis*, synonymy discussed ; BERGENDAL (1).

*Polychaerus*, n. g. of Accelous Turbellarians, with *P. caudatus*, n. sp., MARK.

*Polycladus* : distribution of genus in Chili, Brazil, and Guatemala ; STOLL.

*Polypostia*, n. g. for *P. similis*, n. sp., Sweden ; BERGENDAL (1) (not described).

*Rhynchodemus dubius, fasciatus, fletcheri, grandis, laterolineatus, medio-lineatus*, n. spp., Lord Howe I. ; SPENCER (1). Distribution of genus (Europe, N. America, Ceylon) ; STOLL : in Queensland, DENDY (2).

*Stenostoma leucops*, anatomy ; OTT : occurrence in Warsaw, NUSBAUM, WASSILIEFF.

*Stylochoplana sargossicola*, v. Graff, Sargossa Sea and N. Coast of New Guinea, description ; v. GRAFF (4). Distribution, nervous system, Gonads ; v. GRAFF (1).

*Syndesmis echinorum* on *Echinus* ; CUÉNOT.

*Uteriporus vulgaris*, BERGENDAL (5), (6), and (1).

*Vortex pictus, sexdentatus, truncatus*, and n. sp. (figured), near Warsaw ; WASSILIEFF. *V. millportianus*, common near Warsaw ; NUSBAUM.

An Alloioceol Turbellarian, to which no name is given, found in the underground waters of Canterbury, New Zealand, is briefly described by HASWELL (4, II).

# IV.—NEMATODA, ACANTHOCEPHALA, and CHÆTOGNATHA.

## A.—BIOLOGICAL.

### 1. GENERAL.

Monograph of the *Acanthocephala*; HAMANN (2), KAISER (1). KAISER criticizes some points in HAMANN's monograph in an appendix.

General account and classification of the *Chaetognatha*; STRODTMANN.

Anatomy and histology of *Bradydema rigidum*; STRASSEN: of *Myzomimus scutatus*; STILES (1): of *Mermis nigrescens*; V. LINSTOW (5): of *Strongylus crurus*; STRÖSE: of *S. convoluta*; STADELMANN: of *Tylenchus fucicola*, n. sp.; DE MAN: of *Filaria apipillocephala*, n. sp.; CONDORELLI (2): of *F. bancrofti*; V. LINSTOW (1): of *Nectonema agile*; WARD, pp. 143-177.

### 2. EPIDERMIS.

JAMMES (1) shows that there is at first a well-developed continuous layer of ectoderm cells; that then a number of these take on a protective function and become the "cuticle," while the rest persist in the "granular layer" of the adult, especially in the so-called "nerve regions": the more parasitic the Nematode is, the more ectoderm is converted into cuticle, and the less persists as "granular layer." CHATIN also shows that there is originally a cellular ectoderm, at least in *Heterodera*. CONDORELLI (2) describes a new species of *Filaria*, in which the cuticle is annulate, though the rings are not complete at the sides. WARD describes the double row of lightly attached, immovable bristles, along the dorsal and ventral lines of *Nectonema agile*. Cuticle of *Bradydema*; STRASSEN.

### 3. MUSCULAR SYSTEM.

Histology of muscle cells of *Ascaris* and other Nematodes; BÜTSCHLI, ROHDE (1, I): of *Mermis*, comparing them with those of *Amphioxus*; ROHDE (1, II). In *Gordius*, ROHDE (1, III) finds the different stages in the development of the muscle-cells (coelomyarian and holomyarian type) persistent in the adult *G. tolosanus*; in *G. prelii* there are only muscle-cells of the coelomyarian type, but these are open towards the sub-cuticle, and not towards the coelom, as in *Ascaris*.

### • 4. DIGESTIVE SYSTEM.

Rudimentary condition of alimentary canal and absence of functional anus in *Nectonema*; WARD: in *Bradydema*; STRASSEN. Œsophagus of *Ascaris* ectodermal, not entodermal; BOVERI. Formation of stomodeum and proctodeum from the mesoderm in *Bradydema*; STRASSEN.

## 5. COELOM.

Development in Nematodes ; HAMANN (1), JAMMES (2). It is shown that there is no splanchnic mesoblast ever developed, and therefore that the "coelom" of Nematodes is not properly homologous with that of other animals. Development in *Sagitta*, see under "11. Development."

## 6. VASCULAR SYSTEM.

A new species of *Echinorhynchus* (*E. hamanni*) with lemniscæ consisting of four plates, two on each side, each bent in the middle, and the one lying inside the other ; wall-less blood-vessels both in them and in the cutis ; v. LINSTOW (4).

## 7. EXCRETORY SYSTEM.

HAMANN (1) maintains that in Nematodes the excretory vessels are mesodermal in origin, and that even in the adult they lie in the connective tissue of the lateral ridges, and not in the lateral ridges themselves. KAISER (2) has discovered numerous flame-cells in the two disc-shaped bodies, near the genital aperture of *Echinorhynchus gigas* ; each flame is composed of a number of parallel thin cilia in constant undulation, and they together form an excretory organ in connection with the three vascular spaces which lie in the walls of the uterine bell, passing from the coelom into the uterus.

## 8. LATERAL LINES.

Their ectodermal origin ; WANDOLLECK : and consequent distinction from the excretory vessels ; HAMANN (1). CONDORELLI (2) describes a new species of *Filaria* with a ringed body and segmented lateral line.

## 9. NERVOUS SYSTEM AND SENSE ORGANS.

Of *Ascaris megalocephala*, several new points, HESSE ; two kinds of sensory organs in the lips described. Of *Nectonema agile*, WARD, the brain is placed ventrally, but above it there are four large conical cells, sending processes down to it, which are probably ganglion cells. HAMANN (2) maintains that the cephalic ganglion of *Echinorhynchus* is endodermal. KAISER (1) does not agree with him (pt. 2), and criticizes him (Appendix). Development of the whole of the nervous system, like the granular layer, from a single tissue of neuroepithelial elements in *Ascaris* ; JAMMES (1). Histology of nerve in Nematodes, a criticism of APÁTHY [see Annelid part of Record], and maintaining that there is nothing in nerves corresponding to the contractile fibrils of a muscle-cell, though in both kinds of cells there is spongioplasm ; ROHDE (1, I). Nerve of *Mermis* compare with that of *Amphiocus* ; ROHDE (1, II). Nerve of *Gordius* ; ROHDE (1, III).

## 10. GENITAL SYSTEM.

On the origin of the germ cells, as distinguished from the somatic cells, in *Ascaris megalocephala*; BOVERI: part of the ectoderm, as well as meso- and endoderm, shown to arise from one of the two first segmentation spheres, and from this the two archigonad cells are developed. Centrosomes in egg of *A. megalocephala* shown to be present at the very beginning of the development of the egg, before the expulsion of the polar body; LEBRUN.

## 11. DEVELOPMENT AND LIFE-HISTORY.

Segmentation and gastrulation in *Strongylus*; WANDOLLECK. According to JAMMES (2), there is no true gastrula stage in *Oxyurus*, but a solid planula of ectoderm and mesendoderm, the endoderm remaining solid even after its separation from the mesoderm. Gastrula stage in *Echinorhynchus*; HAMANN (2) & KAISER (1) take different views.

Formation of coelom in *Sagitta* shown not to be enterocoelic, as hitherto supposed, but schizocoelic, the pouches of the archenteron only becoming part of the alimentary canal of the adult; JOURDAIN, M. S. Formation of "coelom" in Nematodes; HAMANN (1), JAMMES (2), [see under "Coelom"]: according to both the body cavity arises as a split between mesoderm and endoderm, there being no splanchnic mesoblast. WANDOLLECK shows the formation of the mesoblast in *Strongylus* from two pole cells of the endoderm posteriorly. Mesoblast formed from the ectoderm, and give rise to almost all the organs in *Bradynema rigidum*; STRASSEN.

WANDOLLECK shows how the different organs are formed from the three germinal layers in *Strongylus*; the nervous system is developed from the ectoderm, the large posterior mesoderm cells persist and form the gonads. In *Oxyurus*, JAMMES (2), the gonads are formed in the middle of the body, the only part where the mesoderm is more than one-cell layered. According to BOVERI, in *Ascaris* the gonads are formed from cells which were originally part of the ectoderm. In *Sagitta* they are shown to arise from the mesoblast by JOURDAIN, M. S.

Development of *Bradynema rigidum*, STRASSEN: of *Heterakis*, RAILLIET & LUCET (2): of *Echinorhynchus*, KAISER (1).

Life-history of *Filaria papillosa*, DEUPSER: of *F. recondita*, CALANDRUCCIO: of *Sclerostomum tetracanthum*, GILES (1): of *Strongylus convolutus*, STADELMANN: of *Mermis nigrescens*, v. LINSTOW (5): of *Gordius pustulosus*, CAMERANO (1): of *Echinorhynchus proteus*, ZSCHOKKE [see under "Distribution according to hosts"].

Discovery of male: of *Filaria medinensis* (living inside the female), CHARLES: of the *Filaria* of the "boutons hémorrhagiques" of the ass, RAILLIET & MOUSSU: of *Gordius pustulosus*, CAMERANO (1). Discovery of female of *Nectonema agile*; WARD.

Descriptions of embryos of *Filaria sanguinis hominis*, NABIAS & SABRAZÉS : of embryos and larvæ of *F. recondita*, CALANDRUCCIO.

Pædogenesis in an *Echinorhynchus*, HAMANN (2) : criticized, KAISER (1). Pædogenesis and protandric hermaphroditism, without heterogony, in *Bradydema rigidum* ; STRASSEN.

## 12. VARIATIONS.

STILES (1) shows that the individual variation amongst parasitic Nematodes is so great that were it not for the complete series of connecting links, the extremes might be regarded as distinct species.

## 13. CLASSIFICATION.

JOURDAIN, M. S., proposes to class the *Chaetognatha* with the *Ascidians* and *Amphioxus* as a group, the "Protovertebrata." STRODTMANN proposes a classification for the group CHÆTOGNATHA in itself, recognizing three genera : *Sagitta*, *Krohnia*, and *Spadella* ; he enumerates the characteristics of value in classification, and gives tables for distinguishing the species. A classification of the ACANTHOCEPHALA, recognizing three families, is given by HAMANN (3), [see Systematic part of Record]. The systematic position and relationship of *Nectonema agile* is discussed by WARD, pp. 182-188, and it is concluded that the genus is most nearly allied to the *Gordiidae*, since it has most of the characteristics which separate this family from the rest of the Nematodes.

## 14. DISTRIBUTION ACCORDING TO HOSTS.

### a. General.

Distribution of several Nematodes, and of *Echinorhynchus*, according to hosts, STOSSICH (4) : of Mecklenburg species (35 Nematodes, and 13 species of *Echinorhynchus*), BRAUN (5).

### b. Mammals.

Schlerostomids of equine animals, GILES (1) : one new species (*S. robustum*) in mules, GILES (2). *Filaria* in ass, RAILLIET & MOUSSU : in body cavity of horse and cattle, STILES (2). *F. papillosa*, in serous cavity of horse and ox ; DEUPSER. *Trichocephalus*, in liver of an ox ; CAPARINI. *Filaria* in heart and lungs of Chinese horses and dogs ; FAUVEL. *Strongylus* of heart and lungs of dog ; RAILLIET & CADIOT (2). *F. immitis* and others in Japanese dogs ; JANSON & TOKISHIGE. Unsuccessful attempts to transmit *Strongylus vasorum* from one dog to another ; RAILLIET & CADIOT (1). *Æsophagostoma columbianum*, CURTICE, *Strongylus colubriiformis*, and *Spiroptera verrucosum*, n. spp., in Indian sheep ; GILES (3) and (4). Ascarids in liver of pigs ; ORTMANN. *Strongylus rubidus* in stomachs of American pigs, and its effects ;

HASSALL & STILES. Frequency of *Strongylus* in rabbits; RAILLIET (7). *Trichocephalus* (♀ only) in intestine of ferret, resembling the *T. depressiusculus* of the dog. *Echinorhynchus bullosus*, n. sp., in *Cystophora proboscidea*; v. LINSTOW (4). *E. novellæ*, n. sp., in bat; PARONA (2). *E. hamanni*, n. sp., in *Stenorhynchus (Ogmorhinus) leptonyx*; v. LINSTOW (4).

### c. Birds.

*Filaria serrata*, n. sp., in *Circus cyaneus hudsonensis*, *Echinorhynchus rectus*, n. sp., in *Larus*, sp. ?; LINTON (1). *Trichosoma rubrum*, n. sp., in *Spizilla socialis*; LINTON (3). *Sclerostomum apiostomum*, in *Macacus cynomolgus*; WILLACH. *Heterakis monticelliana*, n. sp., in *Otis tarda*; STOSSICH (4). *H. perspicillum*, in *Numida meleagris*, *H. papillosa*, in three other birds; RAILLIET & LUCET (2). In domestic fowl, *H. brasiliensis*, n. sp.; MAGALHÃES (1, II). In fowl's egg, *Ascaris inflexa*; FOREL.

### d. Reptiles.

In the venom organ of the common rattlesnake, a viviparous species of Nematode; TUTTLE. *Oxyurus longicollis*, Schm. in *Testudo nemoralis*, development; JAMMES (2).

### e. Fish.

Ten species of *Echinorhynchus*, and the fish they inhabit, including *E. thecatus* and *E. attenuatus*, n. spp. (in *Roccus americanus* and *Accipenser brevirostris* respectively); LINTON (4). Hosts of *E. proteus*, ZSCHOKKE, intermediate hosts shown, one to be a fish, the other a *Gammarus*, when there are two, though either of these apparently will serve alone.

### f. Arthropods.

*Filaria recondita* in *Pulex* of dog, its intermediate host shown to be either the *Pulex* of dog or man, or *Rhipocephalus siculus* of dog; CALLANDRUCCIO. *Gordius pustulosus* occurring abundantly in *Blaps mucronata*, also found in *Sphodrus leucophthalmus*, *Harpalus aeneus*, several species of *Amara*, several kinds of spiders, and in *Oniscus murarius*: only one host shown to be necessary, as the development of the egg to past the larval stage goes on in damp earth; CAMERANO (1). *Gordius doriæ*, n. sp., in an *Acanthodis*; CAMERANO (3). A *Gordius* in *Epinephale tithonus*; FOWLER. *Nectonema agile*, ? with a Crustacean as intermediate host; WARD. *Gammarus* ? as intermediate host of *Echinorhynchus proteus*; ZSCHOKKE. *Liparis steineni* with *E.* sp. ?, and *Notothenia corriceps* with *E. megarhynchus*, n. sp.; v. LINSTOW (4). An *Anguillula* in larva of *Asynapta citrina*; KIEFFER. A *Mermis* larva in *Chironomus*; TRYBOM. *Bradynema rigidum* in *Aphodius functarius*; STRASSEN.

g. *Echinoderms.*

*Syndesmis echinorum* on *Echinus*; MATZDORF (3).

h. *Plants.*

Eelworms which attack plants, and how to destroy them; BOS (1), 50 pp. Plants attacked by different species of *Tylenchus* and by *Heterodera schachtii*; CHATIN (2): also the means of protecting them; FREAM. Diseases in different plants caused by *Tylenchus devastatrix*; BOS (3). Occurrence of *T. devastatrix* in the interior of the perithecia of a Sphæriaceous plant; NIEL. In Edelweiss, *T. invalis*; MASSALONGO. Leaf disease caused by an *Aphelenchus*; ATKINSON. Begonias attacked by a new species of *Aphelenchus*; BOS (2). A Nematode (*Tylenchus fucicola*, n. sp.) occurring in a *Fucus*; DE MAN.

## 15. MEDICAL NOTES.

Pathological relations of *Filaria sanguinis hominis diurna* and *F. s. h. perstans*, in Tropical Africa, and prevention; MANSON: *F. perstans* shown to be the probable cause of sleeping-sickness, mature form not yet seen or described; mature form of *F. diurna* probably = *F. loa* of eye of negro, with the mangrove fly for its intermediate host. Discovery and prevalence of the disease caused by *F. s. h.* in the U. S. A.; SLAUGHTER. Seven species of Nematodes and two of *Echinorhynchus*, and the diseases caused by them in man and animals; RAILLIET (1). Ankylostomosis in man and animals; PERONCITO: in man in S. Italy; CONSALVI (1) and (2): a case in man; RIVA. Rhabdonemiasis in man, three cases; SONSINO (3). Trichinosis in Netherlands; CARSTEN. On the frequency of strongylosis in rabbits; RAILLIET (7). Schleratomiasis in equine animals, and connection with disease known as "Surra" in India; GILES (1). *Ascaris lumbricoides* shown to be capable of direct transmission in man without the intervention of an intermediate host; EPSTEIN. Experiments in feeding with American trichinæ; KLAPHAKE. Power of obtaining new hosts in Trichinæ; OSTERTAG. Guinea-worm in tongue; HILLIER. Escape of Ascarids in fever; DEMATEIS. *Ascaris* and its eggs as cause of liver abscess; GENERICH, G. & A.

## 16. PROPERTIES AND HABITS.

Vitality of embryos of *Filaria sanguinis hominis*; NABIAS & SABRAZÈS: of *Uncinaria*, *Trichocephalus*, and *Strongylus*; RAILLIET (4). Variability of power of resisting dessication in different species of *Strongylus*; RAILLIET & CADIOT (2): inability to resist dessication in a *Filaria*; RAILLIET & MOUSSU. Regressive changes of Trichinæ in their capsules, calcification, and fatty degeneration; LANGERHANS.

Habits of *Nectonema agile*; WARD, pp. 139 & 140.

## 17. METHODS.

For killing Nematodes for sections: corrosive sublimate + 70 % alcohol + a few drops of 5 % acetic acid, added while rolling the Nematode between two slides, recommended; STILES (11): for mounting *Trichinæ*; PRESTON: for staining and preparing embryos of Nematodes; NABIAS & SABRAZÉS, CALLANDRUCCIO,<sup>1</sup> WANDOLLEK, and STRASSEN, p. 701: for histology of the adult; STRÖSE, JAMMES: for histology of *Nectonema*; WARD, pp. 136 & 137: of the *Acanthocephala*; KAISER (1): for preserving *Sagitta*; CUNNINGHAM.

## B.—FAUNISTIC.

## 1. PARASITIC FORMS.

[*Gordius* is placed with the non-parasitic forms.]

General remarks on distribution of Land Nematodes; STOLL.

Geographical distribution of *Filaria sanguinis hominis*; MANSON: its absence in China; FAUVEL. Geographical distribution of *Tylenchus devastatrix*; BOS (3).

Denmark: *Trichinæ*, FRIIS. Mecklenburg: 16 genera and 35 species of Nematodes, 13 species of *Echinorhynchus*; BRAUN (5). S. Italy: *Ankylostoma*; CONSALVI. Venice: other Nematodes; STOSSICH (3). Trieste: new species of *Heterakis*; STOSSICH (4).

Japan: *Filaria immitis* and other parasites of dog; JANSON. China: a *Filaria* fatal in horses and dogs, *Ascaris lumbricoides* in man; FAUVEL. India: Nematodes of sheep and horses; GILES (1), (2), (3), and (4).

Porto Rico: *Echinorhynchus novellæ*, n. sp., PARONA.

Brazil: *Heterakis brasiliensis*, n. sp., in fowl; MAGALHÃES.

S. Georgia: *Ascaris osculata* (which hitherto only found in Arctic regions), two other *Ascarids*, 3 new species and 1 sp.? of *Echinorhynchus*; V. LINSTOW (4).

## 2. NON-PARASITIC FORMS.

N. Atlantic Ocean: geographical distribution of *Chætognatha*; STRODT-MANN. Devonshire Coast: *Spadella cephaloptera*; GARSTANG (1). Bergen: *Enoplidæ*; APPELÖF.

Bohemia: pond Nematode; FRITSCH & VÁVRA.

Sardinia: *Gordius villoti*, *aquaticus*, *tolosanus*, and *pustulosus*; MARCIALIS.

Burma: *Gordius doriae*, n. sp., and *G. villoti*, *rosa*, and *sphaerurus*; CAMERANO (3). Sumatra: *G. weberi* and *G. sumatrensis*, n. spp., VILLOT (2). Engano: *G. modigliani*, n. sp., CAMERANO (5).

S. America.—Venezuela: *G. æneus*, CAMERANO (2). Parana (Palmeira): *G. paranensis*, n. sp., CAMERANO (4).

S. Georgia: *Leptosomatum antarcticum*, n. sp., *L.* sp.? (♀ only), *Monhystera* sp.? (♀ only or immature), *Oncholaimus* sp. (♀ only), *Euchromadora* sp.? (immature only); V. LINSTOW (4).

## C.—SYSTEMATIC.

## 1. NEMATODA, INCLUDING MERMITHIDÆ AND GORDIIDÆ.

*Angiostomum macrostomum*, notes on larva ; v. LINSTOW (3).

*Anguillula* parasitic in larva of a *Cecidomyiid* fly ; KIEFFER.

*Aphelenchus* as cause of a leaf disease ; ATKINSON. *A. olesistus*, n. sp., causing disease in Begonias ; BOS (2).

*Ascaris* : subcuticular layer ; JAMES (1) : muscle and nerve ; ROHDE (1, 1) : muscle, BÜTSCHLI : nervous system, HESSE : origin of Gónads, BOVERI : Centrosomes, LEBRUN. *A. ensicaudata*, *scombrorum*, hosts ; STOSSICH (4). *A. scombrorum*, n. sp., STOSSICH (4). *A. pterostichi*, n. sp., larva, v. LINSTOW (3). *A. osculata*, Rud., and 2 other species in S. Georgia ; v. LINSTOW (4). *A. inflexa*, specimen in hen's egg ; FOREL. *A. lumbricoides* in man, in China ; FAUVEL.

*Bradynema rigidum*, v. Sieb., anatomy, histology, &c. ; STRASSEN.

*Dispharagus aduncus*, hosts ; STOSSICH (4). *D. spiralis* at Venice, notes on ; STOSSICH (3).

*Euchromadora* sp.? (immature) from S. Georgia ; v. LINSTOW (4).

*Filaria sanguinis hominis*, *perstans* and *diurna* ; MANSON, SIMMONS, SLAUGHTER : description of embryos ; NABIAS & SABRAZÉS (1) and (2) : absence in China ; FAUVEL. *F. bancrofti* ; v. LINSTOW (1) : distinguished from *F. immitis* ; MEGALHÃES (2). *F. immitis*, v. METER : in dogs of Japan, JANSON. Discovery of male of *F. medinensis* ; CHARLES : of another *Filaria* (in the ass) ; RAILLIET & MOUSSU. *F. papillosa*, life-history ; DEUPSER. *F. recondita* and *F. immitis* (?), description of embryo and larva ; CALANDRUCCIO. *F. cervina* and *F. equina*, fresh diagnoses ; STILES (2). *F. apapillocephala*, n. sp., CONDORELLI (2). *F. ephemeridarum* and *gammari*, n. spp., v. LINSTOW (3). *F. serrata*, n. sp., from intestine of *Circus cyaneus hudsonius* ; LINTON (1). *F. ninni*, n. sp., STOSSICH (3). (*F. rigidum*), v. Sieb., = *Bradynema rigidum*, n. g. ; STRASSEN.

*Gordius*, muscles and their development in 2 species ; ROHDE (1, III). *A Gordius* parasitic in *Epinephele tithonus* (♀) ; FOWLER. *G. pustulosus*, parasitism and development ; CAMERANO (1). *G. tolosanus*, Duj., larva ; v. LINSTOW (3). *G. weberi* (intermediate between *Gordius*, s. str., and *Chordodes*) and *G. sumatrensis* (belonging to *Chordodes* group), n. spp., Sumatra, VILLOT (2). *G. modigliani* (belonging to *Chordodes* group), n. sp., Engano, CAMERANO (5). *G. paranensis*, n. sp., Palmeira, CAMERANO (4). *G. doriae*, n. sp., in an *Acanthodis*, Burma ; CAMERANO (3). *G. aneus*, Villot, from Venezuela, and other S. American species, anatomy ; CAMERANO (2).

*Heterakis* : remarks on the genus ; RAILLIET & LUCET (2) and MAGALHÃES (1, II). *H. perspicillum*, in small intestine of *Numida meleagris* ; *H. papillosa* in three other birds ; RAILLIET & LUCET (2). *H. brasiliensis*, n. sp., in domestic fowl ; MAGALHÃES (1, II) ; *H. monticelliana*, n. sp., in intestine of *Otis tarda* ; STOSSICH (4).

*Heterodera schachtii*, chiefly in its relation to economics ; CHATIN, FREM.

- Hystrichis tricolor*, in Venice, notes on ; STOSSICH (3).  
*Leptosomatum antarcticum*, n. sp., and a sp. ? (♀ only) from S. Georgia ;  
 V. LINSTOW (4).  
*Mermis*: muscle and nerve compared with that in *Amphioxus* ; ROHDE  
 (1, II). *M. nigrescens*, anatomy, histology, and life-history ; V. LINSTOW  
 (5). *M. albicans*, larvæ in *Chironomus* ; TRYBOM. *M. crassa*, V. L.,  
*M. gammari*, and *M. sialidis*, n. spp., larvæ ; V. LINSTOW (3).  
*Monhystera*, sp. ? (♀ or immature), from S. Georgia ; V. LINSTOW (4).  
*Myzomimus scutatus*, detailed anatomy, with mention of individual varia-  
 tions ; STILES (1).  
*Nectonema agile*, detailed anatomy, pp. 143-177; discussion on anatomy,  
 pp. 177-182 ; its relations to *Gordius*, pp. 182-188 ; its taxonomy,  
 pp. 137-139 ; WARD, Bull. Mus. C. Z. xxiii.  
*Nematodum gamasi*, n. sp., larva ; V. LINSTOW (3).  
*Cesphagostoma columbianum*, described and shown to be cause of nodular  
 disease of intestine of Indian sheep ; GILES (3).  
*Oncholaimus*, sp. ? (♀ only), from S. Georgia ; V. LINSTOW (4).  
*Oxyurus longicollis*, early stages in development ; JAMMES (2).  
*Rhabdonema*, disease caused by ; SONSINO (3).  
*Sclerostomum tetracanthum*, life-history ; GILES (1). *S. robustum*, n. sp.,  
 in mules, and remarks on the other species in equine animals ;  
 GILES (2). *S. apiostomum*, parasitic in nodules of colon of *Macacus*  
*cynomolgus* ; WILLACH.  
*Spiroptera verrucosa*, n. sp., in Indian sheep ; GILES (4).  
*Strongylus convolutus*, anatomy and life-history ; STADELMANN. *S.*  
*micrurus*, histology ; STRÖSE. *S. paradoxus*, embryonic development ;  
 WANDOLLECK. *S. rubidus*, in stomach of pigs ; HASSELL & STILES.  
*S. vasorum*, and other species, in dog ; RAILLIET & CADIOT (1) and  
 (2). *S. colubriiformis*, n. sp., in sheep ; GILES (4). *S. curticii*, n. sp.,  
 name proposed for Curtice's *S. ventricosus*, to distinguish it from  
 Rudolph's ; GILES (4).  
*Syndesmis echinorum*, parasitic on *Echinus* ; MATZDORF (3).  
*Trichocephalus* in the intestine of a ferret, ♀ only found, resembling  
*T. depressiusculus* of dog ; RAILLIET (2, VIII). *T.* in liver of an ox ;  
 CAPARINI (1, I).  
*Trichosoma rubrum*, n. sp., in thoracic cavity of the Chipping Sparrow ;  
 LINTON (3). *T. bombinatoris*, n. sp., larva ; V. LINSTOW (3).  
*T. verrucosum*, n. sp., GILES (4), afterwards referred to *Spiroptera*.  
*Tylenchus devastatrix*, and its ravages on plants ; FREEMAN, BOS (3) : its  
 occurrence in a Sphæriaceous plant ; NIEL. *T. invalis* of Edelweiss ;  
 MASSALONGO. *T. fucicola*, n. sp., parasitic on *Fucus* ; DE MAN.

## 2. ACANTHOCEPHALA.

Monograph of group ; HAMANN (2), KAISER (1) : *Nephridia* ; KAISER (2).  
 HAMANN (3) distinguishes 3 families, viz. :—

1. *Echinorhynchidæ*, g. *Echinorhynchus*, for *E. proteus*, *haeruca*,  
*polymorphus*.

2. *Gigantorhynchidae*, g. *Gigantorhynchus*, for *G. echinodiscus*, *taeniorides*, *spira*, and ? *E. gigas*.
3. *Neorhynchidae*, g. *Neorhynchus*, for *N. claviceps*, *N. agilis*, and others.

*Echinorhynchus proteus*, development and life-history ; ZSCHOKKE (1).  
*E. teres*, anatomy and distribution according to hosts ; STOSSICH (4).  
*E. lanceolatus*, from Venice, notes on ; STOSSICH (3). *E. polymorphus* and *E. proteus*, larvæ ; v. LINSTOW (3). *E. polymorphus* and *E. filicollis* distinguished ; BRAUN (5). *E. novellæ*, n. sp., from a S. American bat ; PARONA (2). *E. hamanni*, remarkable n. sp. (from *Stenorhynchus leptonyx*), with anterior part of body apparently serving as a sucker. *E. bullosus* (from *Cytophora probiscoidea*), *E. megarhynchus* (from *Notothenia corniceps*), n. spp., and *E. sp.* ? (from *Liparis steineni*), all from S. Georgia ; v. LINSTOW (4). *E. rectus*, n. sp., from a lark ; LINTON (1). *E. thecatus* in *Roccus americanus*, and *attenuatus* in *Accipenser brevirostris*, n. spp. ; LINTON, (4) pp. 528 & 529, with remarks on the following other species in fish. *E. acus*, p. 525, *E. pristis*, p. 530, var. *tenuicornis*, p. 531, *E. incrassatus*, *agilis*, *serrani*, *sagittifer*, *carchariæ*, *proteus*, pp. 532-537. (*E. globocaudatus*), Zeder, = *E. tuba*, Rud. ; CONDORELLI (3).

### 3. CHÆTOGNATHA.

Systematic and general monograph, with 2 tables for determining the species ; STRODTMANN. 3 genera are distinguished, viz.:—*Sagitta*, with 11 spp. ; *Krohnia*, with 2 ; and *Spadella*, with 7.

Development of *Sagitta*, JOURDAIN, M. S., leading to the suggestion that, with *Amphioxus* and Ascidians, *Sagitta* would form a group, which may be called the "Protovertebrata."

*Spadella cephaloptera*, on Devonshire Coast ; GARSTANG (1).

## V.—ROTIFERA (including GASTROTRICHA).

### A.—BIOLOGICAL.

#### 1. GENERAL.

BERGENDAL (3) gives an important monograph on the Rotifers of Greenland, dealing fairly fully with the anatomy of 82 species, belonging to 42 genera, found there. Although the number of species is large, the number of individuals is comparatively small. The chief characteristic of the fauna is the rarity of the *Rhizota*, except for *Floscularia*, and of the *Tubicolaria*, which are groups with an otherwise almost universal distribution.

WIERZEJSKI (3) gives a general account of the Rotifers of Galicia, dealing with their anatomy, development, &c., with the collecting of

them, and their taxonomy. COSMOVICI (2) gives the anatomy of the Roumanian Rotifers, comparing them with those of Galicia.

Anatomy and histology of *Atrochus tentaculatus*, n. g. & sp. of Rotifer, without a wheel-organ ; WIERZEJSKI (4). Description of a new species of *Pedalion* (*P. fennicum*), from Finland, with no glandular posterior haired papillæ ; LEVANDER. Anatomy and histology of *Gastroschiza tricantha*, n. g., and type of a new family, of Rotifers, including the *Euchlanis lynceus* of Ehrenberg ; BERGENDAL (4) : of *Anapas ovalis*, n. g. & sp., belonging to the same family, with carapace like *Gastroschiza*, but with no foot ; BERGENDAL (4).

## 2. NERVOUS SYSTEM AND SENSE ORGANS.

Exhibition of subœsophageal ganglion ; ZELINKA. Sense of vision ; ROUSSELET (4), where it is shown, by experiment, that Rotifers appear to see well even close objects.

## 3. REPRODUCTION, &c.

Remarks on the males and winter eggs of Rotifers ; BERGENDAL, (3) Act. Lund. iii, pp. 130-149. The male of *Notops clavulatus* and of *Triphylus lacustris* found ; WESTERN.

## 4. CLASSIFICATION, &c.

VETTER doubts (though no reasons are given) the relationship between Rotifers and the Trochosphere larva. DADAY revises the species of *Asplanchna*, with special reference to the Hungarian forms, concluding that the "reserve jaws," not being part of the real jaw apparatus, are of no importance in classification, but that the external form of both sexes, the shape of the real jaws, the external form of the ovary, and the shell of the winter eggs are of classificatory importance. His species are, however, criticized by WIERZEJSKI (2).

## 5. HABITS, &c.

Occasional parasitism of a species of *Proales* on *Daphnia* ; THOMPSON, P. G. (2). Commensalism of 2 new species, one of *Callidina* and one of *Pterodina*, on *Asellus* ; PARSONS. *Discopus synaptæ*, Zel., as an Echinoderm parasite ; CUÉNOT, MATZDORF (3). Moss-haunting Rotifers, 2 new species of *Macrotrachela* ; THOMPSON, P. G. (1).

## METHODS.

Of collecting ; WIERZEJSKI (3) : of examining under the microscope ; ROUSSELET (1).

## B.—FAUNISTIC.

Distribution of Rotifers according to saltness of water ; COSMOVICI (1), & DADAY, E. (1). Daday concludes that there are only 28 purely marine species, 32 both marine and lacustrine, 6 also in inland salt lakes ; he does not deal with the purely freshwater forms ; and he is not altogether accurate in the forms whose distribution he does deal with. IMHOF (1) also deals with the distribution of the same kind of Rotifers, and concludes that of the marine and brackish forms, 9 species occur in the Baltic, 25 in the North Sea (23 not yet observed elsewhere), 1 in the Irish Sea, 7 in the Mediterranean ; he records 40 species of Euryhaline forms, *i.e.* : forms which inhabit both sea- and fresh-water. IMHOF (4) gives a summary of the pelagic fresh-water Rotifers, concluding that there are 29 species, and 1 variety of them ; in speaking of the life of frozen seas, IMHOF (2) mentions 3 species of Rotifers, all belonging to the genus *Anuraea*. BERGENDAL (3) gives a detailed account of the Rotifer fauna of Greenland, comparing it (pp. 150–163) with that of other regions. LEVANDER (2) enumerates the Rotifers of the South of Finland, mostly fresh-water ones, but 18 salt-water species occur off Esbo.

## ARCTOGÆAL REGION.

*a. Arctic Zone.*

Greenland : 82 species and 42 genera, including 3 new genera, 2 new subgenera, each with 1 new species, and 18 other new species ; freshwater chiefly, but a few marine ; BERGENDAL (3).

Iceland : Pelagic Rotifer of Dyrefjord (*Synchata pectinata*) ; POUCHET. Freshwater Rotifers, 2 species (mentioned only) ; DE GUERNE & RICHARD.

*b. Palæarctic Zone.*

Baltic Sea : 9 species, both marine and brackish ; IMHOF (1). E. Baltic : 40 species ; KOJEVNIKOV.

Circum-Baltic Region.—Finland : a new species of *Pedalion* ; LEVANDER (1). Other Rotifers ; LEVANDER (2). Bornholm (?)—"Rönne-Mölla"—and Stockholm ; 2 (or ? 3) species of the new genus *Gastroschiza*, of which one is probably Ehrenberg's *Euchlanis lynceus*, and of which the other would probably serve as type of another new genus, *Anapas* ; BERGENDAL (4) & JÄGERSKIÖLD.

Norwegian.—Bukkenfjord : a new species of *Anuraea* ; THOMPSON, J. C.

North Sea : 25 species, of which 23 not found elsewhere ; IMHOF (1).

Scotland.—Forfarshire : a new species of *Notops*, and 2 rare species, one of *Copeus*, and the other *Triarthra* ; CALMAN. A few miles north of Dundee : 2 new species of *Floscularia* ; HOOD (1) & (2).

England.—Essex: new species of *Macrotrachela*; THOMPSON, P. G. (1). Chingford: ♂ of *Triphylus lacustris*; WESTERN. Leytonstone: new species of *Proales* on *Daphnia*; THOMPSON, P. G. (2). Epping Forest: new species of *Notops*, ROUSSELET (2): 2 new species, PARSONS. 3 new species of Macrotrachelous *Calidinidæ*; BRYCE (1). Keston: 2 new species, ROUSSELET (3). Surrey, Richmond Park: ♂ of *Notops clavulatus*; WESTERN. Middlesex: List of Rotifers in ponds near Ealing; LEWIS. Sussex: new species of *Macrotrachela*; THOMPSON, P. G. (1). Isle of Wight: 3 new species; BRYCE (1).

Central Europe.—Switzerland: list of Rotifers; IMHOF (3). Tyrol: *Stephanoceros eichornii*; DALLA-TORRE. Württemberg: Rotifer fauna, 117 species; BILFINGER. Bohemia: 4 pelagic pond forms, 2 semipelagic, and 10 littoral; KAFKA. Unter-Pocernitz: pond with 9 Rotifers. Gatterschlag: pond with 13 Rotifers and a *Gasterotricha*. Hungary: 13 species belonging to the genera *Asplanchna*, *Brachionus*, and *Triarthra*; DADAY, J. Hungarian representatives of genus *Asplanchna*, 9 species; DADAY, E. (2). Galicia: 2 new genera, each with 1 new species, and 6 other new species; WIERZEJSKI (3). Roumania: 23 species and 15 genera, 3 species new; COSMOVICI (2).

Mediterranean: 7 species; IMHOF (1). Black Sea: *Synchaeta baltica*, Ehr.; PÉRIASLAVZEFF.

### c. Nearctic Zone.

United States.—L. Michigan: *Rotifer elongatus*; KELLICOTT. Cincinnati: Rotifer fauna, including 6 new species; TURNER.

## NEOTROPICAL REGION.

Argentina: Freshwater Rotifers; WIERZEJSKI (2).

## ETHIOPIAN AND ORIENTAL REGIONS.

[None.]

## AUSTRALIAN REGION.

Victoria: Rotifer fauna—6 species of *Floscularia*, of which 1 new; 11 species of the *Meliceritids*, of which 2 (? 3) new, and 1 new variety; 4 *Philadissids*; 2 *Asplanchnids*; 3 *Synchaetids*; 2 *Triarthrids*; 4 *Notomastids*; 1 *Rattulid*; 1 *Dinocharid*; 2 *Salpinids*; 1 *Euchlanis*; 3 *Cathypnids*, of which 2 new; 1 *Colurid*, which new; 2 *Pterodinids*, of which 1 new; 3 *Brachionids*; 2 *Anuræids*.

## C.—SYSTEMATIC.

*Actinurus neptunus*, Ehr., Roumania, anatomy; COSMOVICI (2). *Anapas ovalis*, n. g. & sp., Scandinavia; BERGENDAL (4).

- Anuraea cruciformis*, n. sp., Bukkenfjord, THOMPSON, J. C. ; 3 species in frozen seas, IMHOF (2) ; *A. sp.* ? in ponds of Iceland, DE GUERNE & RICHARD. *A. cochlearis*, var. *carinata* : notes on distribution ; LEVANDER, (2) p. 142.
- Arthroglena*, n. subg. of *Diglena*, with *A. lütkeni*, n. sp., Greenland ; BERGENDAL (3).
- Asplanchna* : 9 Hungarian species recognized and described, synonymy of each given, and also a table for determining the species ; DADAY, E. (2). DADAY, J., also mentions some Hungarian forms. *A. herrickii*, Guerne, description ; DADAY (2), WIERZEJSKI (2). *A. girodi*, Guerne, description ; WIERZEJSKI (2) : and, under the name of (*A. syrinx*), DADAY (2). *A. helvetica* in Iceland, DE GUERNE & RICHARD, shown to = (*A. kraemeri*), Guerne, which = *A. priodonta*, which described ; WIERZEJSKI (2) and DADAY (2). *A. sieboldii* in Hungary ; DADAY (2) : broken up into *A. ebbesborni* and *A. brightwelli*, by WIERZEJSKI (2), both of which also described by DADAY (2). (*A. imhofi*), Guerne, belong to either *A. ebbesborni* or *A. brightwelli* ; WIERZEJSKI (2), and DADAY (2). *A. triophthalma*, Dad., *amphora*, Huds., and *intermedia*, Huds., recognized by DADAY (2) as Hungarian species, but said not to be good species by WIERZEJSKI (2). *A. cinnatus*, n. sp., TURNER.
- Atrochus*, n. g., with *A. tentaculatus*, n. sp., Galicia, WIERZEJSKI (3) : anatomy and histology ; WIERZEJSKI (4).
- Bipalpus*, n. g., with *B. vesiculosus*, n. sp., and including as another species the *Euchlanis lynceus*, Ehr. ; WIERZEJSKI (3). In a note (3) he shows that they = *Gasteroschiza flexilis* and *G. faveolata*, Jägerskiöld, respectively.
- Brachionus* : Hungarian species ; DADAY, J. *B. n. sp.* ? (or = *B. amphicerus*, Ehrb., which is a variety of *B. pala*), Roumania ; COSMOVICI (2). *B. tuberculatus*, n. sp., Cincinnati ; TURNER.
- Callidina* : Macrotrachelous forms (*i.e.*, those which when fully extended, have the post anal-portion decidedly shorter than the pre-intestinal), 21 species recognized, of which 19 British, 4 new species, *C. plicata* (Epping Forest and I. of Wight), *lata* (I. of Wight and Folkestone), *spinosa* (I. of Wight), and *aspera* (Epping Forest), fully described ; BRYCE (1). *C. laevis*, *C. tentaculata*, n. spp., and *C. sp.* ?, N. Greenland ; BERGENDAL (3). *C. magna-calcarata*, n. sp., commensal on *Asellus*, Epping Forest ; PARSONS.
- Cathypra*, n. sp. (allied to *C. luna*), Victoria ; ANDERSON & SHEPHARD. *C. leontina*, n. sp., Cincinnati, TURNER.
- Celopus similis*, n. sp., Galicia, described and figured ; WIERZEJSKI (3).
- Conochilus unicornis*, n. sp., Keston, ROUSSELET (3).
- Copeus ehrenbergi*, Gosse, in Forfarshire ; CALMAN.
- Diglena* ? *natans*, n. sp., Greenland, BERGENDAL, (3) pp. 94 & 107.
- Dinocharis intermedia*, n. sp., Greenland, BERGENDAL, (3) pp. 94 & 107.
- Diops*, n. g., of *Notommatidae*, with *D. marina*, n. sp., Greenland ; BERGENDAL, (3) p. 94.

*Discopus synaptæ*, Zel., as an Echinoderm parasite ; MATZDORF (3), CUÉNOT.

*Distemma dubia*, n. sp., Greenland, BERGENDAL, (3) p. 100.

*Distyla* : notes on genus ; LORD. *D. clara*, *agilis*, *inermis*, n. spp., British, BRYCE (2). *D. ichthyoura*, n. sp., Victoria, ANDERSON & SHEPHARD.

*Euchlanis parva*, n. sp., Keston, ROUSSELET (3). *E. elegans*, n. sp., Galicia, description and figure ; WIERZEJSKI (3). (*E. lynceus*), Ehrb., belong to *Gasteroschiza*, n. g., BERGENDAL (4), followed by JÄGERSKIÖLD : belong to *Bipalpus*, n. g. ; WIERZEJSKI : Bergendal found it at Rönne-Mölla, Jägerskiöld, near Stockholm, and Wierzejski in Galicia, all independently, and at about the same time.

*Floscularia gossii*, n. sp., Stormont Loch, Blairgowrie, occurring on *Chara fetida* ; HOOD (1). *F. quadrilobata*, n. sp., from a pond also a few miles N. of Dundee, attached to *Ranunculus* and *Nitella* ; HOOD (2). *F. evansonii*, n. sp., Victoria, ANDERSON & SHEPHARD. *F. uniloba*, n. sp., Galicia, WIERZEJSKI (3).

*Gasteroschiza*, n. g. for *G. triacantha*, n. sp., Rönne Mölla, which allied to or ? = (*Euchlanis lynceus*), Ehrb. ; BERGENDAL (4). *G. faveolata*, n. sp., near Stockholm, and *G. triacantha*, Berg. ; JÄGERSKIÖLD. *G. flexilis*, n. sp., near Stockholm, JÄGERSKIÖLD, = ? *Anapas ovalis*, n. g. & sp., BERGENDAL (4). [See also under *Bipalpus*.]

*Gastrotricha*, in Bohemia ; FRITSCH & VÁVRA.

*Hypopus*, n. g. of *Notammatidæ*, with *H. ritenbenki*, n. sp., Greenland ; BERGENDAL, (3) p. 45.

*Laciniaria reticulata*, n. sp., Victoria ; ANDERSON & SHEPHARD.

*Limnia*, sp.?, allied to *L. granulatus*, Victoria ; ANDERSON & SHEPHARD.

*Macrotrachela multispinosa* and *papillosa*, n. spp. from moss ; THOMPSON, P. G. (1).

*Mastigocerea capucina*, n. sp., Galicia, WIERZEJSKI (3) and (4).

*Metopidia affinis*, n. sp., Greenland, BERGENDAL, (3) p. 122. *M. elliptica* and *dentata*, n. spp., Cincinnati, TURNER. *M. ovalis*, n. sp., Victoria, ANDERSON & SHEPHARD.

*Mikrocodides*, n. g., with *M. dubius*, n. sp., Greenland, BERGENDAL, (3) p. 34.

*Monostyla quennerstedti*, n. sp., Greenland, BERGENDAL, (3) p. 118. *M. truncata*, n. sp., Cincinnati, TURNER. *M. tentaculata*, n. sp., Roumania, COSMOVICI (2). *M. bifurca* and *galeata*, n. spp., British, BRYCE (2).

"*Notholca*" *ambigua*, n. sp., Greenland, BERGENDAL, (3) p. 123.

*Notolca equispinata*, n. sp., Roumania, COSMOVICI (2).

*Notommata tarda*, *grönlandica*, *celer*, *distincta*, *longipes*, n. spp., Greenland, BERGENDAL, (3) pp. 55-66.

*Notops clavulatus*, ♂ found in Richmond Park ; WESTERN. *N. minor*, n. sp., Epping Forest ; ROUSSELET (2). *N. pygmæus*, n. sp., Forfarshire, CALMAN.

*Notostemma*, n. subg. of *Notommata*, with *N. makrocephala*, *affinis*, *bicarinata*, n. spp., Greenland ; BERGENDAL, (3) pp. 69-71.

*Æcistes serpentina*, Roumania, anatomy ; COSMOVICI (2). *Æ. wilsoni*,

- n. sp., and a n. var. of *Æ. intermedius*, Victoria; ANDERSON & SHEPHARD.
- Pedalion*, a new species, *P. fennicum*, from Helsingfors, ♀ only found, differing from *P. mirum* chiefly in that there are no glandular posterior hair-bearing papillæ, and that the lateral processes lie more ventrally and the nephridia are coiled in them; LEVANDER (1).
- Philodina roseola*, Ehrb., Roumania; COSMOVICI (2).
- Pleurotrocha marina*, n. sp., Greenland, BERGENDAL, (3) p. 50.
- Proales*: observations on the quasi-parasitic habits of the genus, and description of a new species from Essex, *P. daphnicola*; THOMPSON, P. G. (2).
- Pterodina cæca*, n. sp., living commensally in *Asellus*, Epping Forest; PARSONS. *P. emarginata*, n. sp., Galicia, description and figure; WIERZEJSKI (3). *P. trilobata*, n. sp., Victoria, ANDERSON & SHEPHARD.
- Rotifer elongatus* in L. Michigan; KELLCOTT.
- Stephanops grönlandicus*, n. sp., Greenland, BERGENDAL, (3) p. 111. *S. bifurcus*, Bolton?, Galicia, description and figures; WIERZEJSKI (3).
- Syncheta stylata*, n. sp., Galicia, description and figure; WIERZEJSKI (3). *S. baltica*, Ehrb., in the Black Sea; PÉRIASLAVZEFF. *S. pectinata*, Ehrb., as a predominant pelagic form of Dyrefjord, Iceland, and observations on it; POUCHET.
- Taphrocampa levinseni*, n. sp., Greenland, BERGENDAL, (3) p. 48.
- Triarthra*, Hungarian species; DADAY (7). *T. terminalis*, Plate, in Farshire; CALMAN.
- Triphylus lacustris*, ♂ found at Chingford; WESTERN.

## VI.—MESOZOA.

FRENZEL's papers of last year on *Salinella*, translated into English in Ann. N. H.

NUSBAUM (1) gives a summary of the different theories with regard to the derivation of the *Meta*- from the *Protozoa*, and deals especially with *Salinella* as a connecting link. APATHY also concludes that the gap between the *Meta*- and *Protozoa*, between *Trichoplax* and *Volvox*, is satisfactorily filled by *Salinella*.

## XVI. CŒLENERATA.

BY

SYDNEY J. HICKSON, M.A., D.Sc.

## I.—LIST OF PAPERS.\*

1. ALCOCK, A. A case of Commensalism between a Gymnoblatic Hydro-medusoid (*Stylactis minoi*, n. sp.) and a Scorpænoid Fish (*Minous inermis*). Ann. N. H. x, pp. 207-214, 1 cut.
2. ANGELIS, G. DE. Introduzione allo studio degli Antozoi fossili. Riv. Ital. Sci. Nat. xii, pp. 129-132, 141 & 142.
3. ANON. The Australian Barrier Reef. Notice of Mr. Saville Kent's book on "The Great Barrier Reef of Australia, 1893," with two photomezzotypes. Nat. Sci. 1892, pp. 646 & 647.
4. ANTIPA, G. Die Lucernariden der Bremer Expedition nach Ostspitzbergen im Jahre 1889. Zool. Jahrb. vi, pp. 377-390, 2 pls. Abstr. in J. R. Micr. Soc. 1892 (v), p. 623.
5. ——. Ueber das Vorkommen von rudimentären "Principaltentakeln" bei Lucernariden. T. c. pp. 392 & 393.
6. APPELLÖFF, A. Zur Kenntniss der Edwardsien. Bergens Mus. Aarsber. 1891, No. 6, 32 pp., 3 pls.
7. BIGELOW, K. P. On a new species of *Cassiopea (xamachana)* from Jamaica. Zool. Anz. xv, No. 393, pp. 212-214. Abstr. in J. R. Micr. Soc. 1892 (iv), p. 490.
8. ——. On the development of the marginal Sense Organs of a Rhizostomatous Medusa (*Cassiopea xamachana*). Johns Hopk. Univ. Circ. xi, No. 97, pp. 84 & 85. Abstr. in J. R. Micr. Soc. 1892 (iv), pp. 490 & 491.
9. ——. On Reproduction by Budding in the *Discomedusæ*. Johns Hopk. Univ. Circ. xi, No. 97, pp. 71 & 72. Abstr. in J. R. Micr. Soc. 1892 (iv), p. 491.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

10. BROOK, G. Preliminary description of (40) new species of *Madrepora* in the Collection of the British Museum. Ann. N. H. x, pp. 451-465. Abstr. in J. R. Micr. Soc. 1893 (iii), p. 336.
11. BRUNCHORST, J. Die Biologische Meeresstation in Bergen. Bergens Mus. Aarsber. 1890, No. 5.
12. CARLGREN, O. Beiträg zur Kenntniss der Edwardsien. Öfv. Ak. Förh. 1892, pp. 451-461, 6 figg. Abstr. in J. R. Micr. Soc. 1893 (ii), p. 195.
13. CERFONTAINE, P. Sur l'organisation et le developpement des differentes formes des Anthozoaires. Bull. Ac. Belg. xxii, pp. 128-148, 1 pl.
14. CHUN, C. Die Dissogonie, eine neue Form der geschlechtlichen Zeugung. Leuckart's Festschr. pp. 77-108, 5 pls, 3 figg. in text.
15. CLAUS, C. Ueber die Entwickelung des Scyphostoma von *Cotylorhiza*, *Aurelia*, und *Chrysaora*, sowie über die systematische Stellung der Scyphomedusen. Arb. z. Inst. Wien, x, 1, pp. 1-70, 3 pls. Also published separately by Hölder, Vienna, 1892.
16. CUNNINGHAM, J. T. On a species of Siphonophore observed at Plymouth. J. Mar. Biol. Ass. ii, 1892, pp. 212-215, 2 figg. Abstr. in J. R. Micr. Soc. 1892 (iv), p. 491.
17. DRIESCH, H. Kritische Erörterungen neuerer Beiträge zur theoretischen Morphologie. II. Zur Heteromorphose der Hydroidpolypen. Biol. Centralbl. xii, pp. 545-556, 3 figg. Abstr. in J. R. Micr. Soc. 1892 (vi), p. 799.
18. GERD, W. Zur Frage über die Keimblätterbildung bei den Hydro-medusen. Zool. Anz. xv, No. 399, pp. 312-316, 5 figg. Abstr. in J. R. Micr. Soc. 1892 (vi), p. 800.
19. GÖTTE, A. Ueber die Entwickelung von *Pelagia noctiluca*. SB. Ak. Berlin, 1892, Heft vii, pp. 413-421.
20. GREGORIO, M. A. DE. Intorno a taluni Celenterati mediterranei viventi. Nat. Sicil. xii (3), pp. 74 & 75.
21. GREGORY, J. W. The Exploration of Coral Reefs by Borings. Nat. Sci. i, No. 1, pp. 50-52.
22. GRIEG, J. A. Oversigt over Norges Pennatulider. Bergens Mus. Aarsber. 1891, No. 1, 24 pp., 1 pl.
23. GURLEY, R. R. The Geological Age of the Graptolite Shales of Arkansas, and New Species of Graptolites. Ann. Rep. Geol. Survey Arkansas, iii (1890), pp. 401-404 & 416-418, 1 pl.
24. HACKER, V. Die Furchung des Eies von *Aequorea forskalea*. Arch. mikr. Anat. xl, pp. 243-263, 2 pls. & 5 figg. in text. Abstr. in J. R. Micr. Soc. 1892 (vi), p. 799.

25. HADDON, A. C. The newly-hatched larva of *Euphyllia*. Sci. P. R. Dublin Soc. vii, pp. 127-136, 1 pl. & 1 fig. in text. Abstr. in J. R. Micr. Soc. 1893 (i), pp. 53 & 54.
26. HARTLAUB, C. Zur Kenntniss der Anthomedusen. Nachr. Ges. Götting. 1892 (1), pp. 17-23, 3 figg. in text.
27. HICKSON, S. J. Preliminary notes of observations on the anatomy and habits of *Alcyonium*. P. Cambr. Phil. Soc. 1892 (vii), pt. 6, pp. 305-308. Nature, xlv, No. 1167, p. 455.
28. —. Notes on a small collection of *Hydrocorallinæ*. Sci. P. R. Dublin Soc. vii, pp. 496-510, 3 pls. Abstr. in J. R. Micr. Soc. 1892 (vi), pp. 799-800.
29. —. Note on the female gonophores of *Errina labiata*. Zool. Anz. xv, No. 394, pp. 237 & 238. Abstr. in J. R. Micr. Soc. 1892 (v), p. 623.
30. —. Abstract of a paper entitled, "A Revision of the Genera of the *Alcyonaria stolonifera*." P. Z. S. 1892, pp. 594-596.
31. JAMES, J. H. Manual of the Palæontology of the Cincinnati group: *Cœlenterata*. J. Cincinnati Soc. 1892 (xiv), pp. 149-163, 1 fig.
32. KIRKPATRICK, R. Reports on the Zoological collections made in Torres Straits by Professor A. C. Haddon. *Hydroida* and *Polyzoa*. Sci. P. R. Dublin Soc. vi, pt. x, pp. 603-626, 4 pls.
33. KOCH, G. VON. Kleinere Mittheilungen über Anthozoen. 7. Über Kolonien von *Bebryce mollis*, Phil., welche Cornulariden ähnlich sind. 8. Aggregierte Kolonien von *Balanophyllia verrucaria*, Aut. Morph. J.B. xviii, 2 hft., pp. 373-376, and 376-382, with 11 figg. Abstr. in J. R. Micr. Soc. 1892, pt. 3, p. 377.
34. —. Kleinere Mittheilungen über Korallen. 9. Beobachtung des Wachsens von *Clavularia ochracea*. Morph. J.B. xviii, pp. 605-608, 1 fig. Abstr. in J. R. Micr. Soc. 1892 (vi), p. 799.
35. LANG, ALB. Ueber die Knospung bei *Hydra* und einigen Hydropolypen. Mit einem Vorwort von A. Weismann. Z. wiss. Zool. liv, pp. 365-385, 1 pl. Abstr. in J. R. Micr. Soc. 1892 (vi), pp. 801 & 802.
36. MAAS, O. Ueber Bau und Entwicklung der Cuniculenknochen. Zool. Jahrb. v, pp. 271-300, 2 pls. Abstr. in J. R. Micr. Soc. 1893 (i), pp. 54 & 55.
37. NAGEL, W. Der Geschmackssinn der Actinien. Zool. Anz. xv, pp. 334-338. Abstr. in J. R. Micr. Soc. 1893 (i), p. 54.
38. ORTMANN, A. Ueber Korallriffe an der ostafrikanischen Küste. Zool. Anz. xv, No. 381, pp. 18-20. Translated in Ann. N. H. ix, pp. 339 & 340; copied in Naturwiss. Rundschau, vii, No. 15, p. 196. Abstr. in J. R. Micr. Soc. 1892 (iv), p. 490.

39. [ORTMANN, A.] Die Korallriffe von Dar-es-Salaam und Umgegend. Zool. Jahrb. vi, pp. 631-670, 1 map. Abstr. in J. R. Micr. Soc. 1893 (ii), p. 194 & 195.
40. —. Bericht über die wissenschaftlichen Leistungen in der Naturgeschichte der Anthozoen während des Jahres 1888. Arch. f. Nat. lv, Bd. 2, Hft. 3, pp. 167-179.
41. REHBERG, H. Neue und wenig bekannte Korallen. Abb. Ver. Hamb. xii, pp. 1-50, 4 pls., and separately published by Friederichsen, Hamburg.
42. SAMASSA, P. Zur Histologie der Ctenophoren. Arch. mikr. Anat. xl, pp. 157-243, 5 pls. Abstr. in J. R. Micr. Soc. 1892 (vi), pp. 797-799.
43. SLUITER, C. P. Eine geschichtliche Berichtigung. Die Korallentheorie von Eschscholtz. Zool. Anz. xv, pp. 326 & 327. Abstr. in J. R. Micr. Soc. 1893 (i), p. 54.
44. STUDER, T. Sur un cas de reproduction par fissiparité chez un Alcyonaire (*Schizophytum echinatum*). Act. Soc. Helv. lxxiv, p. 54.
45. VANHÖFFEN, E. Jahresbericht für 1888 über die Cœlenteraten mit Ausschluss der Spongien und Anthozoen. Arch. f. Nat. lv, Bd. ii, Hft. 5, pp. 135-166.
46. —. Die Akalephen der Plankton Expedition. Ergeb. Plankton Exped. 28 pp., 4 pls., and 1 map.  
WEISMANN, A. [See LANG, A.]
47. WILLEM, V. La digestion chez les Actinies. Zool. Anz. xvi, pp. 10-12. Vanderhaeghen, Gand : 1892, 8vo. Extract from Bull. Soc. de Médéc. Gand, 1892, pp. 295-305. Abstr. in J. R. Micr. Soc. 1893 (ii), p. 195.
48. ZOJA, R. Die vitale Methylenblaufärbung bei *Hydra*. Zool. Anz. xv, No. 394, pp. 241 & 242.
49. —. Intorno ad alcune particolarità di Struttura dell' *Hydra*. Rend. Ist. Lombardo, xxv, pp. 700-712, 1 pl.

## II.—MORPHOLOGY.

### HYDROZOA.

LANG (35) describes the histology of the young buds of *Hydra*, *Eudendrium*, and *Plumularia*, and maintains that the ectoderm, and the ectoderm only, contributes to their formation. When a bud is about to be formed, the ectoderm of the parent thickens in a certain restricted portion of the body, by a process of rapid division by fission of the ectoderm cells. After a time some of these ectoderm cells wander through the mesoglaea into the endoderm, and these cells eventually form the endoderm of the

bud. The mesogloea of the parent in the area of the ectoderm thickening then breaks down, and is subsequently replaced by the formation of a new mesogloea by the young bud.

ZOJA (48) by the use of, comparatively speaking, strong solutions of methyl blue, has been able to clearly demonstrate the ectodermic nervous system of *Hydra*, confirming, in general details, the results arrived at by Schneider. He was able to prove the existence, in the ectoderm, of nerve nodules, from which numerous fibres spring, of nerve cords formed by the junction of several nerve fibres, and complicated networks of fine fibrils and rigid fibrils leading from this nervous system to the nematocysts. These points are illustrated by a coloured plate in the Rendiconti (49).

MAAS (36) describes a stock of *Cunina* buds which he obtained from the enteric cavity of *Geryonia*. The axis of the stock is not a simple tube, but possesses numerous irregular ramifications. The author is of opinion that a planula is produced sexually, and this settles down in the tissue of the *Geryonia*, and forms a stock which produces *Medusæ* by budding, in fact that there is a simple alternation of generations.

DRIESCH (17) gives an account of the different modes of growth in two forms of *Sertularella*. His investigations, he maintains, prove that there is in the hydroid colony no such substance as idioplasm. A polyp may give rise to another polyp, or a stolon to another stolon or a shoot, according to the physical or mechanical conditions that may be influencing it during its growth.

GERD (18) states that at an early stage in the development of the egg of *Bougainvillea*, there is a distinct segmentation cavity formed, but that this is soon obliterated by the growth, in a centripetal direction, of the cells of the cœloblastula. These cells increase in number by tangential division, and some of them wander into the cavity of the embryo. This process of migration ends in the formation of a solid morula (pseudo-morula), and at the time when this is formed the outlines of the cells are very difficult to determine. The mesogloea is formed subsequently, and then the "pseudo-morula" changes into a solid planula.

HICKSON (28) gives an account of a small collection of *Hydrocorallinae* collected by Professor Haddon in Torres Straits. The collection consisted of several specimens, both dried and in spirit, of *Millepora murrayi*, *Distichopora violacea*, and a small specimen in spirit of *Stylaster gracilis*. An account is given of the anatomy of *Stylaster gracilis*, and there is a short discussion of the relations of the genus *Stylaster* to *Allopora*.

Several specimens of *Distichopora* were examined, and it was found that those of a yellow or orange colour were sterile, those of a purplish brown colour bore male gonangia, and those of a violet colour bore female gonangia. These facts seem to indicate either that the *Distichoporas* change colour at different stages in their growth, or that the colour is correlated with their sexual condition. In any case, it seems probable that many of the species that have been established on colour characters will have to be abandoned when their anatomy has been examined.

HICKSON (29) states that the wall of the female gonangium of *Errina*

*labiata* consists of two layers, one of ectoderm and one of endoderm, as in other Stylasterids previously described.

HÄCKER (24) gives a description of the early stages of the development of *Æquorea forskalea*. The early stages are extremely regular, the nuclear divisions, up to the sixty-fourth stage, being simultaneous.

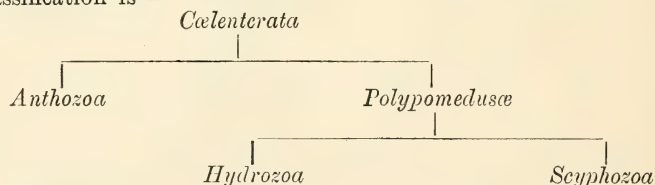
### SCYPHOZOA.

CLAUS (15) gives an account of some new observations on the development of certain *Scyphozoa*, and discusses, very fully, the systematic position of this group. He found that the 16-armed larva of *Cotylorhiza* remained unchanged in the Zoological Institution at Vienna and at Trieste all the winter and spring. The first changes that occurred began in July, when buds were formed, not on the crown, but on the body-wall of the larva. Strobilisation began in August, and is limited to the formation of one ephyra at a time. In the early Scyphostoma stage, the mesogloea is a clear liquid lamella, composed of a substance very similar to the contents of the endoderm cells. It must be considered to be derived from these cells. This is in striking contrast to the origin of the mesogloea in *Aleynaria*, where it is derived, according to Kowalewsky and Marion, from the ectoderm.

The inner layer of cells of the proboscis is endodermal. This confirms the views of McMurrich, and controverts those of Gøtte.

Claus states that Gøtte is also wrong in his account of the development of the septal funnels. There is no cavity in the septal muscle, and the funnels do not become the sub-genital pits.

As a general conclusion from these researches, Claus maintains that the *Scyphomedusæ* cannot be included in the group of the *Anthozoa*. The correct classification is—



GØTTE (19) finds that, although there is no true Scyphostoma in the development of *Pelagia*, the general features of the development of this form are very similar to those of *Aurelia* and *Cotylorhiza*. The main points of difference are in the absence, in *Pelagia*, of larval tentacles and septal muscles.

While the whole inner structure and the course of radiation are the same as in other *Medusæ*, the rhythm of the formation of the enteric pouches and septa is somewhat different, and follows the following course :—

- 2 radials of the principal plane, endodermic.
- 2       "       transverse       "       ectodermic.
- 4 adradials by division of the 2nd ectodermic pouches.
- 4       "       "       1st endodermic       "
- 4       "       "       last ectodermic       "

In all, 6 endodermic and 10 ectodermic pouches.

BIGELOW (9) states that, whereas the budding that takes place on any other part of the Scyphostoma than the crown in *Aurelia*, *Cyanæa*, and *Cotylorhiza* is a mere incident in the life-history of the individual, in *Cassiopea xamachana* the process of budding from the Scyphostoma is an important, if not the chief factor in the perpetuation of the species.

BIGELOW (8) states that Goette is wrong in asserting that the rhopalialia are formed as evaginations from the under surface of the marginal part of the umbrella independently of the larval tentacles. In *Cassiopea xamachana*, at any rate, they are formed as modifications of one series of larval tentacles. Otoliths are formed at the base, and the distal portion of the tentacle is absorbed.

ANTIPA (4) found in an example of a very young *Craterolophus*, between the adradial arms, and therefore in the perradii and interradii, a small true tentacle. This is of importance, he considers, as it proves that the *Lucernariæ* are derived from a form which possessed 8 (4 per- and 4 inter-radial) tentacles.

#### ANTHOZOA.

APPELLÖFF (6) finds that there is a well-developed nervous system in the ectoderm of the capitulum of *Edwardsia*, but there is no ectodermal musculature. As in Carlgren's tribe *Protantheæ*, there are no mesenterial stomata and no acontia. All these and other points show great affinities between *Edwardsia* and the *Protantheæ*.

CERFONTAINE (13) discusses the arrangement of the tentacles in *Cerianthus membranaceus*. Fresh tentacles are constantly being formed. The author also says that if pieces are cut off a polype of *Astroides calycularis*, polypes arise which never produce a skeleton, but grow nevertheless and reproduce by gemmation.

NAGEL (37) made a series of experiments, proving the existence of a sense of taste in the tentacles of several species of sea anemones. A piece of the flesh of a sardine was greedily seized by the tentacles and swallowed, a piece of blotting paper of the same shape was not touched; a piece of sardine flesh which had been washed in water for some time was seized, but not very energetically, but a piece of blotting paper which had been soaked in the sardine extract was seized as eagerly as the flesh itself.

WILLEM (47) made some experiments on the digestion of sea anemones by feeding them with carminated albumen and the liver of the mussel. He finds that the absorption takes place by the whole of the endoderm and the endoderm only. No grains of carmine or liver globules were ever found in the cells of the mesenterial filaments.

HADDON (25) describes some young larvæ of *Euphyllia*, 1.5 mm. long. They rested on their aboral surface on the side of the vessel. They had eight complete mesenteries and two incomplete ones, these being the sulco-sulcar laterals. According to Bourne, the adult *Euphyllia* is radially symmetrical. This larva is obviously bilaterally symmetrical.

HICKSON (27) gives some preliminary notes on the minute anatomy of *Alcyonium digitatum*. There is no evidence for the existence of a lumen in all the cords of endoderm cells found in the mesogloea between the cœlentera. A nervous system, in the form of a delicate network of fibrils and cells, penetrates the mesogloea. The author also gives an account of the mode of retraction of the polyps, and of a series of experiments he made at Plymouth, proving the tidal rhythm of expansion and contraction of the polyps in the living state.

VON KOCH (33) describes some colonies of *Bebryce mollis*, which form true stolons, like those of the *Stolonifera*. These stolons, moreover, secrete basally (from the ectoderm) a horny lamella. The author also describes aggregated colonies of *Balanophyllia verrucaria*, which cannot easily be distinguished from those formed in the ordinary way by budding.

VON KOCH (34) states that a piece of the stolon of *Clavularia ochracea* is constant in growth for twenty days, increasing in length about 0.5 mm. per diem, and forming a new polype every sixth day.

STUDER (44) calls attention to a case of reproduction by fission occurring in an Alcyonarian (*Schizophytum echinatum*).

### CTENOPHORA.

SAMASSA (42) writes an elaborate and fully illustrated paper on the histology of the *Ctenophora*. He was unable to find any definite nervous system, but he regards the polar bodies, the polar fields, and meridian bands as forerunners of a nervous system, and capable of performing all its physiological functions. He concludes with some remarks in favour of Lang's view that the *Turbellaria* are derived from the *Ctenophora*.

CHUN (14) has an interesting paper on some of the more recent results of his work on the life-history of *Ctenophora*. He defines "Dissogony" as the condition in which a single individual becomes sexually mature in two different forms, between which is interposed a stage in which degeneration of the sexual products occur.

The particular case discussed is that of *Bolina hydatina*, which brings forth a sexually mature Cydippe form, followed by a stage in which the gonads disappear before the adult characters make their appearance. Dissogony is obviously a form of Pædogenesis, but differs from it in the interposition of a non-sexual stage between the larval and adult form.

The author has also a chapter on the mechanics of the development of the *Ctenophora*.

### SYMBIOSIS.

ALCOCK (1) describes a remarkable case of commensalism between the Scorpænoid fish, *Minous inermis*, and the Gymnoblasic hydroid, *Stylactis minoi*, n. sp. The *Stylactis* is never found without the *Minous*, nor the *Minous* without the *Stylactis*. The association of these two forms holds good over a wide area of the Indian Seas. The *Stylactis* is usually found

on the throat and around the gill opening of the fish, and it seems to afford it additional resemblance to the encrusted rocks among which it lives.

### CORAL REEFS.

The most important contributions to our knowledge of Coral Reefs during the year 1892, are those of ORTMANN (38). This author states that the reefs of the East African coast, from the coast opposite Zanzibar as far south as Mikiudani, are all fringing reefs. There are no true atolls nor barrier reefs. The coast all along the line has been undergoing gradual elevation, as is proved by numerous remains of old reefs above the sea level.

He found that many corals, such as *Porites*, *Goniastrea*, *Cœloria*, and *Tubipora*, are able to survive exposure to the sun and air at low tides for hours together.

Some corals, such as *Psammocora*, *Montipora*, and *Lophoseris*, are capable of thriving on a loose gravelly bottom, held together by sea-grass.

In his account of the corals of Dar-es-Salaam, the same author (39) shows that of the 44 species, 12 are widely distributed in the Indo-Pacific region, 23 are Indian species, 2 of which go as far as China, 5 are purely Pacific, and 2 are new.

SLUITER (43) points out that the views as to the origin of coral reefs usually attributed to Chamisso, are really those of Eschscholtz.

GREGORY (21) gives a short account of some of the more recent results obtained by making borings on coral reefs.

The editor of Natural Science (3) gives a short account of Saville Kent's book on the Australian Barrier Reef (1893), illustrated by two excellent photomezzotints of the reef.

### III.—FAUNISTIC.

BRUNCHORST (11) gives a list of all the *Cœlenterata* known to occur in the neighbourhood of Bergen.

KIRKPATRICK (32) gives an account of the *Hydroidea* collected by Professor Haddon in Torres Straits, and a list of all the known species from that district. *Tubularinæ*, 4 species; *Campanularinæ*, 5 species; *Sertularinæ*, 11 species; and *Plumularinæ*, 12 species.

HICKSON (28) gives an account of the *Hydrocorallinæ* collected by Professor Haddon in Torres Straits. 3 species.

ANTIPA (4) describes the *Lucernariidæ* collected in the region of East Spitzbergen. 3 species.

VANHÖFFEN (46) gives an account of the *Akalephæ* collected by the Plankton Expedition. 9 species, and an account of the distribution of the *Cathammata*.

ORTMANN (39) gives a list of the corals found upon the reefs in the neighbourhood of Dar-es-Salaam.

GRIEG (22) gives figures of *Cladiscus loveni* and *Funiculina quadrangularis*, and a list of all the Pennatulids found on the coast of Norway.

REHBERG (41) gives, on pp. 30-35, a very useful list of the names of the species of *Madrepora* occurring in different parts of the world.

#### IV.—NEW GENERA AND SPECIES.

### HYDROZOA.

#### GYMNOBLASTEÆ.

KIRKPATRICK (32) describes the following new species:—

*Coryne* v. *Syncoryne cylindrica*, p. 605, growing on *Cellepora granulosa*, Albany Passage, 8 faths.

*Cladocoryne haddoni*, p. 605, growing on *Idia pristis*, Murray I., 15 to 20 faths.

*Eudendrium infundibuliforme*, p. 606, 20 miles N.N.W. of Warrior I., 5½ faths.

*Stylactis minoi*, ALCOCK (1), p. 212, commensal with the fish *Minous inermis* in the Indian Seas.

#### ANTHOMEDUSÆ.

*Turris cœa*, HARTLAUB (26), p. 19, Mediterranean. HARTLAUB (26) protests against VANHÖFFEN'S views in joining *Pandæa* and *Tiara*. The gonads of the two genera are not alike.

#### CALYPTOBLASTEÆ.

*Diphasia scalariformis*, KIRKPATRICK (32), p. 609, growing on *Aglao-phenia huxleyi*, 20 miles N.N.W. of Warrior I., 5½ faths.

#### HYDROCORALLINÆ.

*Millepora tenella*, ORTMANN (39), p. 668, Dar-es-Salaam.

### RHABDOPHORA.

*Dicranograptus arkansasensis*, GURLEY (23), p. 416, Dicellograptus zone, Arkansas. *D. nicholsoni*, var. *parrangulus* (n. var.), *id. loc. cit.* p. 417. *Diplograptus trifidus*, *id.* p. 417. Several localities in Arkansas associated with the Dicellograptus fauna. *Dictyonema obovatum*, *id.* p. 418, Dicellograptus zone, Arkansas.

## SIPHONOPHORA.

*Muggiæa atlantica*, CUNNINGHAM (16), Plymouth. The author remarks that this species may be identical with Haeckel's *Muggiæa pyramidalis*.

## SCYPHOZOA.

VANHÖFFEN (46) disapproves of the division of the *Scyphozoa* into *Octomeralia* and *Tetrameralia*. He divides the *Cathammata* (of CLAUS) into two divisions :—

Incoronata	{	<i>Charybdeidæ.</i>
		<i>Lucernariidæ.</i>
		<i>Depastridæ.</i>
		<i>Tesseridæ.</i>
Coronata	{	<i>Periphyllidæ.</i>
		<i>Ephyropsidæ.</i>

The same author (46) describes the following new species :—

*Nausithoe clausi*, p. 14, Carolines.

*Nauphanta vettorisi pisani*, p. 15, Carolines.

*Lucernosa*, n. g., which differs from *Lucernaria* in the more complicated structure of its gonads. It includes four species: *L. bathyphila* = *Lucernaria bathyphila* (Haeckel), and the following three which are new, *L. waltheri*, p. 379, *L. kükenthali*, p. 386, *L. haeckeli*, p. 388, all from E. Spitzbergen, 10–35 faths., ANTIPA (4).

*Cassiopea xamachana*, BIGELOW (7), Jamaica.

## ANTHOZOA.

## ZOANTHARIA.

## MADREPORARIA PERFORATA.

BROOK (10) adds the following new species of the genus *Madrepora* :—

*M. ambigua*, p. 451, Northumberland I. *M. arcuata*, p. 452, Samoa. *M. armata* (= *M. spicifera*, Dana), *M. assimilis* (= *M. appressa*, Quelch), *M. australis*, p. 453, Darnley I. and Wreck Bay, Gt. Barrier Reef. *M. bœodactyla* (= *M. seriata*, Brüggemann), *M. bifaria*, Java. *M. botryodes* (= *M. gonagra* and *M. haimei*, Brüggemann), p. 454. *M. brevicollis*, Rodriguez, &c. *M. bullata*, Port Denison. *M. calamaria* (= *M. plantaginea* and *M. acervata*, Brüggemann), p. 455. *M. clavigera*, loc. ?. *M. cophodactyla*, loc. ?. *M. coronata*, p. 456, Gt. Barrier Reef. *M. decipiens*, Gt. Barrier Reef. *M. elseyi*, N. Australia and Gt. Barrier Reef. *M. exilis*, p. 457, Arafura Sea, 10 faths., &c. *M. fruticosa*, loc. ?. *M. gemmifera* (= *M. seriata*, Quelch). *M. grandis*, Gt. Barrier Reef. *M. guppyi*,

p. 458, Solomon Is. *M. irregularis* (= *M. alces*, Brüggemann), Rodriguez and Macclesfield Bank, 7 or 8 faths. *M. kenti*, Thursday I. and Gt. Barrier Reef. *M. latistella*, p. 459, Port Denison. *M. loripes*, Gt. Barrier Reef. *M. nigra* (= *M. ehrenbergii*, B. Smith). *M. oligocyathus*, p. 460, Mauritius. *M. orbicularis*, Ceylon. *M. patula*, Port Denison. *M. pectinata*, Thursday I. *M. rayneri*, p. 461, Fiji. *M. recumbens*, Gt. Barrier Reef. *M. reticulata*, Arafura Sea, &c. *M. sarmentosa*, p. 462, Gt. Barrier Reef. *M. spectabilis*, loc. ?. *M. squamosa*, p. 463, Gt. Barrier Reef. *M. syringodes*, Gt. Barrier Reef, Samoa, &c. *M. tenella*, p. 464, Macclesfield Bank, 31 & 37 faths. *M. tizardi* (= *M. nasuta*, B. Smith), *M. violacea*, p. 465, Fiji, &c.

ORTMANN (39) describes *Madrepora cylindrus* and *M. horizontalis*, p. 658, Dar-es-Salaam.

REHBERG (41) adds the following species :—

*Dendrophyllia japonica*, p. 28, Japan.

*Cænopsammia ramiculosa*, p. 29, Japan.

*Madrepora incrustans*, p. 35, Tonga Tabu. *M. repens*, p. 36, Madagascar. *M. mexicana*, p. 38, Mexico. *M. dichotoma*, p. 39, Pelew. *M. philippinensis*, p. 40, Philippines. *M. elliptica*, p. 41, Luzon. *M. rudis*, p. 41, Ceylon. *M. papillosa*, p. 42, Tahiti. *M. pelewensis*, p. 42, Pelew.

*Turbinaria marmorea*, p. 43, Ponapé. *T. crispa*, p. 44, Tonga.

*Anacropora spinosa*, p. 46, Pelew.

### PORITIDÆ.

*Porites capricornis*, p. 46, Pelew. *P. profundus*, p. 48, Madagascar.

*P. reticulum* ; ORTMANN (39), Dar-es-Salaam.

### MADREPORARIA IMPERFORATA.

#### TURBINOLIDÆ.

REHBERG (41) describes *Heterocyathus pulchellus*, p. 8, West Coast of Australia. *H. oblongatus*, p. 9, South China Sea, 16 faths.

#### OCULINIDÆ.

*Amphihelia adminicularis*, p. 10, Japan.

*Madracis axillaris*, p. 10, Fiji, 80 faths.

#### ASTREIDÆ.

*Pterogyra simplex*, p. 14, New Ireland.

*Mussa crassidentata*, p. 16, Pelew Is.

*Symphyllia subtilis*, p. 16, Fiji.

*Ulophyllia stuhlmanni*, p. 17, Zanzibar. *U. maxima*, p. 18, Duke of York I.

*Tridacophyllia elongata* p. 18, Pelew.

*Cœloria elegans*, p. 20, N.E. Coast of Australia. *C. deltoides*, p. 20, E. Coast of Australia. *C. australiensis*, p. 21, N. E. Coast of Australia.

*Hydnophora columellata*, p. 21, Yap. *H. klunzingeri*, p. 22, Samoa.

*Clavarina composita*, p. 22, Pelew.

*Echinopora pellucida*, p. 23, Pelew.

*Astræosmilia*, n. g., allied to *Dasyphyllia*, but differing from it principally in the long, laterally-connected calyces and the absence of "Coleretts." *A. connata*, p. 664, Dar-es-Salaam; ORTMANN (39).

#### LOPHOSERIDÆ.

*Folioseris*, n. g., p. 26: this genus stands close to *Pavonia*, from which it differs in the arrangement of the calyces, which do not stand in rows. On the other hand, it shows affinities with the genus *Mycedium*; REHBERG (41).

*F. crispa* (= *Agaricia crispa*, Ehrenberg). *F. papyracea* (= *Pavonia papyracea*, Dana).



## XVII. SPONGIÆ.

BY

R. HANITSCH, Ph.D.

---

### I.—LIST OF PUBLICATIONS.\*

1. ANONYMOUS. [Note on Sponge Deposits discovered near Island of Pantelleria.] *Nature*, xlvi, p. 474.
2. APPELLÖFF, A. Om Bergensfjordenes faunistike præg. *Bergens Mus. Aarsber.* 1891, pp. 1-14.  
Sponges, pp. 11, 12, & 14.
3. BIDDER, G. Note on the Excretion in Sponges. *P. R. Soc. l'*, No. 313, pp. 474-484, 5 woodcuts.
4. ——. On the flask-shaped Endoderm and Spongoblasts in one of the Keratosa [*Cacospongia*, sp.]. *Op. cit.* lii, No. 315, pp. 134-139, 3 woodcuts.
5. BRAUN, M. Nachträge und Berichtigungen zum Zoologischen Theil von "Die landeskundliche Literatur über die Grossherzogthümer Mecklenburg," &c. *Arch. Ver. Mecklenb.* xlv, pp. 87-95.  
*Spongiae*, p. 93.
6. BUCK, E. Einiges über den Bodenseeschwamm. *Deutsche Fischerei-Zeitung*, xv, pp. 366 & 367.
7. CHWOROSTANSKY, C. Ueber die Zone des Küstenstriches der Solowezki-Inseln. *Zool. Anz.* xv (1892), pp. 214 & 215.  
2 Sponges, *Suberites glaserapii*, Mer., and *Halisarca Fr.-schulzei*, Mer.
8. CORTI, B. Foraminiferi e Diatomee fossili del pliocene di Castenedolo. *Rend. Ist. Lombardo* (2) xxv, pp. 991-1012, 1 pl.  
1 Sponge, *Spongolithis acicularis*, Ehrenb., mentioned, p. 1011.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

9. DELAGE, Y. Embryogénie des éponges ; développement postlarvaire des éponges siliceuses et fibreuses marines et d'eau douce. Arch. Z. expér. (2) x, No. 3, pp. 345-498, 8 pls. Abstract in Bibliographie Anatomique, i, No. 1, pp. 13 & 14.
10. DENDY, A. The Discovery of the true Nature of the so-called family *Teichonidæ*. Zool. Anz. xv (1892), pp. 245 & 246.  
Dendy claims the priority over R. v. Lendenfeld of having proposed to abolish the family *Teichonidæ*.
11. —. Synopsis of the Australian *Calcarea Heterocœla*, with a proposed classification of the group, and descriptions of some new genera and species. P. R. Soc. Vict. (n.s.) v, pp. 69-116.  
4 new genera ; 17 new species ; 1 new variety.
12. —. Preliminary account of *Synute pulchella*, a new genus and species of Calcareous Sponges. Op. cit. iv, pp. 1-6.  
1 new genus ; 1 new species.
13. —. On a new species of *Leucosolenia* from the neighbourhood of Port Phillip Heads. Op. cit. v, pp. 178-180.  
1 new species.
14. DÖDERLEIN, L. [Description of *Petrostoma schulzei*, n. g., n. sp. of *Calcarea*, representing a new order Lithones.] Verh. deutsch. Zool. Ges. ii (1892) pp. 143-145.
15. DREYER, F. Ziele und Wege biologischer Forschung, beleuchtet an der Hand einer Gerüstbildungsmechanik. Jena (G. Fischer) : 1892, 8vo, xii & 103 pp., 6 pls.
16. —. Die Principien der Gerüstbildung bei Rhizopoden, Spongien und Echinodermen (Fortsetzung). Jen. Z. Nat. xxvi (n.f. xix), pp. 297-468, 10 pls.  
ETHERIDGE, R. [See JACK & ETHERIDGE (29).]
17. FAMINTZIN, A. Beitrag zur Symbiose von Algen und Thieren. Mém. Ac. Pétersb. (7) xxxviii, 16 pp.
18. GARSTANG, W. Notes on the Marine Invertebrate Fauna of Plymouth for 1892. J. Mar. Biol. Ass. (n.s.) ii, No. 4, pp. 333-343.  
1 Sponge, *Leucosolenia lacunosa*, Bwk.
19. GEINITZ, H. B. Die Versteinerungen des Herzogthums Sachsen-Altenburg. MT. Osterlande (n.f.) v, pp. 161-199.  
*Spongie*, p. 191.
20. GRIFFITHS, A. B. The Physiology of the *Invertebrata*. London (L. Reeve & Co.) : 1892, 8vo, xvi & 477 pp., 81 woodcuts.  
Sponges : pp. 30-32, 79-82, 184, 209, 349, 378.
21. HANITSCH, R. Foraminifer or Sponge ? Nature, xlvii, No. 1216, p. 365.

22. [HANITSCH, R.] Foraminifer or Sponge? *Nature*, xlvii, No. 1219, p. 439.  
On *Neusina agassizi*, Goës, a supposed Foraminifer.
23. HARTOG, M. M. Some Problems of Reproduction : a Comparative Study of Gametogeny and Protoplasmic Senescence and Rejuvenescence. *Q. J. Micr. Sci.* xxxiii, pt. 1, pp. 1-79.  
Sponges, pp. 48 & 49.
24. HERDMAN, W. A. Fifth Annual Report of the Liverpool Marine Biological Station now on Puffin Island. *Proc. Liverpool Biol. Soc.* vi, pp. 10-39.  
Sponges, pp. 26 & 28.
25. —. Notes on the Collections made during the Cruise of S.Y. "Argo" up the West Coast of Norway, in July, 1891. *T. c.* pp. 70-93, 2 pls.  
Sponges, pp. 88 & 89.
26. HINDE, G. J. On *Paleosaccus dawsoni*, Hinde, a new genus and species of Hexactinellid Sponge from the Quebec group (Ordovician) at Little Métis, Quebec, Canada. *Geol. Mag.* (3) x, No. 344, pp. 56-58, 1 pl.  
1 new genus and species.
27. HINDE, G. J., & HOLMES, W. M. On the Sponge-remains in the Lower Tertiary Strata near Oamaru, Otago, New Zealand. *J. L. S.* xxiv, No. 151, pp. 177-262, 9 pls.  
1 new genus, 15 new species, several undetermined.  
HOLMES, W. M. [See HINDE & HOLMES (27).]
28. HORNELL, J. A Strange Commensalism—Sponge and Annelid. *Nature*, xlvii, No. 1204, p. 78.  
*Microciona plumosa* and *Leucodora caeca*.
29. JACK, R. L., & ETHERIDGE, R., JUN. The Geology and Palæontology of Queensland and New Guinea. Brisbane (Beal) and London (Dulau & Co.): 1892, xxx & 768 pp., 68 pls., 1 map.  
Sponges, pp. 199 & 436-439 ; 1 new species.
30. KAFKA, J. Untersuchungen über die Fauna der Gewässer Böhmens. II. Die Fauna der böhmischen Teiche. *Arch. naturw. Landesforsch. Böhmen*, viii, p. 113.  
*Spongillidæ*.
31. KELLICOTT, D. S. The Mills Collection of Freshwater Sponges. *Bull. Buff. Nat. Club*, v, pp. 99-104.
32. KOJEVNIKOV, G. La faune de la mer Baltique orientale et les problèmes des explorations prochaines de cette faune. *Congrès internat. de Zoologie*, ii, No. 1, p. 140.

33. KORSCHOLT, E., & WELTNER, W. Die Lebensverhältnisse der *Dreissensia polymorpha*. Naturw. Wochenschrift, vii, pp. 391-393. *Spongillidæ*, p. 393.
34. LAMEERE, A. Prolégomènes de Zoogénie. Bull. Sci. Fr. Belg. xxiii (1891), pp. 399-411.  
Systematic position of Sponges, &c.
35. LENDENFELD, R. VON. Siliceous Spicules of *Geodia*. J. R. Micr. Soc. 1892, p. 50. Abstract of paper, Ueber die Kieselnadeln von *Geodia*; Zool. Anz. xiv (1891), pp. 407-409. [Vide Zool. Rec. 1891.]
36. —. Bemerkung über die *Homodermidæ*. Zool. Anz. xv (1892), p. 109.
37. —. Ueber Minchin's Angaben betreffs der Histologie der Kalkschwämme. T. c. pp. 277-279.
38. —. Berichtigung. T. c. p. 370.  
Reply to Dendy's article, "The Discovery of the true Nature of the so-called family *Teichonidæ*," t. c. p. 245. Author states that he arrived at his conclusions independently of Dendy.
39. —. Note on Mr. Minchin's paper on *Ascetta*. Ann. N. H. (6) ix, p. 337.
40. —. Note on Dr. Hinde's Tertiary Sponge-spicules. Op. cit. x, p. 268.
41. —. Bemerkungen über die neuerlich von Dendy beschriebenen Kalkschwämme. Biol. Centralbl. xii, pp. 58-60.
42. —. Die Spongien der Adria. II. Mittheilung. Die *Hexaceratina*. Z. wiss. Zool. liv, hft. 3, pp. 275-315, 1 pl.
43. MAAS, O. Die Metamorphose von *Esperia lorenzi*, O. S., nebst Beobachtungen an anderen Schwammlarven. MT. z. Stat. Neap. x, hft. 3, pp. 408-440, 2 pls.
44. —. Die Auffassung des Spongienkörpers und einige neuere Arbeiten über Schwämme. Biol. Centralbl. xii, Nos. 18 & 19, pp. 568-572. Translated in Ann. N. H. (6) x, pp. 399-405: The Interpretation of the Sponge Organism, and some recent works on Sponges. Abstract in J. R. Micr. Soc. 1892, p. 803.
45. —. [Demonstration of Larvæ of Siliceous Sponges.] Verh. Deutsch. Zool. Ges. ii, p. 142.
46. MARSHALL, W. Spongiologische Beiträge. Festschrift zur 70. Wiederkehr des Geburtstages von Rud. Leuckart. Leipzig (C. F. Winter): 1892, imp. 4to, 36 pp., 8 pp. explanation, 8 pls.  
2 new genera, 2 new species.
47. MATTHEW, G. F. List of the Fossils found in the Cambrian Rocks in and near St. John. Bull. Nat. Hist. Soc. New Brunswick, x, pp. xi-xxiii.  
Sponges, p. xv.

43. MINCHIN, E. A. Dr. von Lendenfeld on the Central Cavity in *Euplectella*. Ann. N. H. (6) ix, pp. 408 & 409.
49. —. Some points in the Histology of *Leucosolenia* (*Ascetta*) *clathrus*, O. S. Zool. Anz. xv (1892), pp. 180-184, 3 woodcuts.
50. —. Dr. von Lendenfeld als Kritiker. T. c. pp. 415-417.
51. —. Note on a Sieve-like Membrane across the Oscula of a Species of *Leucosolenia*, with some observations on the Histology of the Sponge. Q. J. Micr. Sci. xxxiii, pt. 2, pp. 251-272, 2 pls. Abstract in J. R. Micr. Soc. 1892, ii, pp. 218 & 219.
52. —. The Oscula and Anatomy of *Leucosolenia clathrus*, O. S. Q. J. Micr. Sci. xxxiii, pt. 4, pp. 477-495, 1 pl.
53. —. Structure of Calcareous Sponges. [Abstract of Minchin's recent papers.] Am. Nat. xxvi, p. 863.
54. MUNROE, K. Sponge and Spongers of the Florida Reef. Scribner's Magazine, Nov. 1892, pp. 639-649, 6 woodcuts.  
Popular account of Sponge-fishing.
55. NOBRE, A. Estudos de Zootomia. Fasc. 2. Porto (Typographia Occidental): 1892, pp. 49-84, 3 pls.  
*Halichondria caruncula*, B.; *Cucospongia scalaris*, O. S., and *Hyalonema lusitanica* are described and figured, apparently for practical class purposes.
56. NORMAN, A. M. Museum Normanianum; or, a Catalogue of the Invertebrata of Europe, and the Arctic and North Atlantic Oceans. VII & VIII: *Spongozoa* and *Rhizopoda*. Durham: 1892, 21 pp.  
*Spongozoa*, pp. 5-14.
57. OGILVIE, M. M. Contributions to the Geology of the Wengen and St. Cassian Strata in Southern Tyrol. Q. J. Geol. Soc. xlix, pt. 1, pp. 1-78, 14 woodcuts, 5 maps.  
22 species of Sponges, including 1 new genus and 1 new species.
58. PEARCEY, F. G. Foraminifer or Sponge? Nature, xlvii, No. 1217, p. 390.  
On *Neusina agassizi*, Goës, a supposed Foraminifer.
59. PÖCTA, P. Ueber Spongien aus der oberen Kreide Frankreichs in dem mineralogischen Museum in Dresden. Mit Vorwort von Dr. H. B. Geinitz. MT. min. geol. Mus. Dresden, xi. Cassel (Th. Fischer): 1892, 4to, 26 pp., 4 pls.  
11 new species, 1 new variety.
60. RAUFF, H. Ueber den Bau des Stützskeletes bei den Anomocladinen und Tetraccladinen. SB. niederrhein. Ges. xlviii (1891), pp. 33-37.
61. —. Ueber eine eigenthümliche Gruppe fossiler Kalkschwämme (*Polysteganinae*). T. c. pp. 45-50.

62. THOMSON, J. A. The Study of Animal Life. London (John Murray): 1892, 8vo, xii & 375 pp., 71 woodcuts.  
*Spongiæ*, p. 188.
63. —. Outlines of Zoology. London (Young J. Pentland): 1892, 8vo, xvi & 641 pp., 32 pls.  
*Spongiæ*, pp. 114–120.
64. TOPSENT, E. Study of *Clonidæ*. J. R. Micr. Soc. 1892, pt. 3, p. 378.  
Abstract of Deuxième contribution à l'étude des Clonides. Arch. Z. expér. (2) ix (1891), No. 4, pp. 523–554, 1 pl. [*Vide* Zool. Rec. 1891.]
65. —. Notes histologiques au sujet de *Leucosolenia coriacea* (Mont.), Bwk. Bull. Soc. Z. Fr. xvii (1892), pp. 125–129, 1 woodcut.
66. —. Sur une Éponge du Lac de Tibériade, *Potamolepis barroisi*, n.sp. Rev. Biol. v, No. 3, pp. 85–92, 1 pl.
67. —. Contribution à l'étude des Spongiaires de l'Atlantique Nord. Résultats des Campagnes scientifiques accomplies sur son yacht par Albert I., Prince souverain de Monaco, publiés sous sa direction, avec le concours du Baron Jul. de Guerne. Fasc. II. Monaco: 1892, gr. 4to, 165 pp., 11 pls, 2 maps gr. fol.  
167 species obtained, 1 new family, 3 new subfamilies, 8 new genera, 58 new species.
68. VOSMAER, G. C. J. On the Canal System of the *Homocela*, and on the morphological value of the terms osculum and pore in Sponges. Tijdschr. Nederl. Dierk. Ver. (2) iii, afl. 3 & 4, pp. 235–242.
69. WELTNER, W. Bericht über die Leistungen in der Spongiologie für die Jahre 1885–87. Arch. f. Nat. liv, pp. 176, 227 & 228.
70. —. Die Tier- und Pflanzenwelt des Süßwassers. Referat über das gleichnamige Werk von O. Zacharias. Naturwissenschaftliche Wochenschrift, 1892, pp. 445 & 446.
71. —. Das Vorkommen von *Cordylophora lacustris*, Allm. bei Berlin. SB. nat. Fr. 1892, No. 6, pp. 76–80.  
Freshwater Sponges, p. 80.
72. —. Bemerkungen über den Bau und die Entwicklung der Gemmulæ der Spongilliden. Biol. Centralbl. xiii, Nos. 4 & 5, pp. 119–126.
73. —. Metallausgüsse des Canalsystemes eines Süßwasserschwammes. SB. nat. Fr. 1893, No. 1, pp. 5 & 6, 1 woodcut
74. —. Ueber die Autorenbezeichnung von *Spongilla erinaceus*. T. c. pp. 7–13.  
One new species.
75. —. Spongillenstudien. Arch. f. Nat. 1893, pp. 209–244.  
Gives the complete literature on *Spongillide*.  
— [See also KORSCHOLT & WELTNER (33).]

76. WIERZEJSKI, A. Ueber das Vorkommen von *Carterius stepanovii*, Petr. und *Heteromeyenia repens*, Potts, in Galizien. Biol. Centralbl. xii, No. 5, pp. 142-145. Abstract in J. R. Micr. Soc. 1892, pt. 3, p. 378.
77. WILSON, H. V. Development of Sponges. J. R. Micr. Soc. 1892, p. 217. Non-sexual Reproduction in Sponges. Am. Nat. xxvi, pp. 626-628. Abstracts of the paper, by the same author, in J. Morph. v, pp. 511-519. [Vide Zool. Rec. 1891.]
78. ZACHARIAS, O. Die biologische Station zu Plön. Zool. Anz. xv (1892), pp. 36-39, 1 woodcut.  
The author recommends the station for the study of Freshwater Sponges, which are found there in enormous quantities.
79. ZYKOFF, W. Die Entwicklung der Gemmulæ der *Ephydatia fluviatilis*, Auct. (Vorläufige Mittheilung). Zool. Anz. xv (1892), pp. 95 & 96.
80. —. Die Entwicklung der Gemmulæ bei *Ephydatia fluviatilis*, Auct. Bull. Mosc. 1892, pp. 1-16, 2 pls. Abstract in J. R. Micr. Soc. 1892, pt. 3, p. 378, and (in Russian language) in Rev. Sci. Nat. St. Pétersb. ii, No. 9, pp. 342-344.
81. —. Entwicklungsgeschichte von *Ephydatia mülleri*, Lieberk., aus den Gemmulæ. Eine biologisch-embryologische Skizze. Biol. Centralbl. xii, Nos. 23 & 24, pp. 713-716.
82. \* —. [Distribution of the *Spongillidæ* in European Russia. Journal Zool. Departm. & Zool. Museum, Moscow, ii, pp. 27-29.] [Russian?].

## II.—ANATOMY, EMBRYOLOGY, PHYSIOLOGY, BIOLOGY.

### (A.) ANATOMY, HISTOLOGY, MORPHOLOGY, AND PHYLOGENY.

BIDDER (3) describes some observations which he thinks prove that the "Metschnikoff" cells and glandular ectoderm cells of *Ascetta* have an excretory function. After the Sponge had been left in a solution of indigo-carmin, in sea water, the granules normally present in those cells became replaced by dark-blue granules. From the Metschnikoff cells (which extend throughout the whole thickness of the Sponge) the granules are probably discharged, both into the gastral cavity and on to the ectodermal surface. A completely different set of granules is found in the basal portion of many Sponges (basal spherules of the endoderm)—they are possibly stores of nutritive matter. This basal portion (plinth) may break off, and then it is used as food by wandering cells (generative elements). The life-history of the collar-cells, and of the Metschnikoff cells is now given. The author suggests, as a working hypothesis, that

the granules in the ectoderm and in the Metschnikoff cells of *Ascetta* are a nitrogenous excretion, common to the protoplasm in all Sponges, greatly varying in their degree of solubility. In some Sponges (*Halisarca*) this excretion forms a slimy covering, in others a horny cuticle, and finally, in Horny Sponges, it has been retained within their bodies until it forms a spongin skeleton.

BIDDER (4) is able to show that the ectoderm cells of the Horny Sponges are of the same form and character as those of the *Homocæla*, viz., of T shape, forming roughly hexagonal areas on the surface, to the centre of which the flask-shaped cell-bodies are attached. The nucleus lies at the base of the pendant cell-body. The spongoblasts are continuous with the ectoderm, and are of the same character. The fibre is nothing more than the concentrated cuticle of a large number of such cells, poured out around an intrusive foreign object. This causes the hexagonal markings of the horny fibre. Bidder finally criticizes Minchin's paper on the histology of *Ascetta clathrus*, and thinks that author's theory of a contractile ectoderm not well tenable.

DENDY (11), who last year published the *Calcarea Homocæla*, as a first instalment of his proposed Monograph of the Australian Sponges, has unfortunately been prevented, by the reduction of the Government Grant to the Royal Society of Victoria, from continuing his Monograph as intended, and gives now merely a synopsis of the *Calcarea Heterocæla*. (For a proposed new classification of that group, see Systematic part of this Record.)

DENDY (12) gives a preliminary account of *Synute pulchella*, a new genus and species of Calcareous Sponges. The Sponge is remarkable from the fact that it consists of a colony of Sycon individuals, completely fused together into a single mass, invested in a common cortex.

DÖDERLEIN (14) describes a most remarkable Calcareous Sponge (*Petrostoma schulzei*, n. g. & sp.), representing a new order (*Lithones*), from the Sagami Bay, Japan. There are two layers of spicules in this Sponge—an outer loose one, composed of triacts and tetracts, and an inner layer which, in the young condition, consists of somewhat irregular tetracts. These latter tetracts soon fuse together, and form a continuous network, similar to that of the *Lithistidæ*. The author emphasizes the fact that this Sponge is different to the fossil *Pharetronæ*, in which the spicules are held together by a foreign substance. It is to be regretted that no illustrations are given of this curious form.

HINDE & HOLMES (27) describe the Sponge-remains in the Lower Tertiary strata near Oamaru, Otago, New Zealand. The material consisted exclusively of detached spicules. This was the case not only with Monaxonid and Tetractinellid Sponges, but also with Lithistid, and, still more strange, with Hexactinellid Sponges.

VON LENDENFELD (42) gives a detailed description of the *Hexaceratina* of the Adriatic, viz., *Halisarca dujardini*, *Aplysilla rosea*, *A. sulfurea*, *Darwinella aurea*. As in former papers, he divides the *Silicea* into two subclasses: *Triaxonina* (with large sack- or pocket-like, simple or branched

chambers), and *Tetrazonia* (with small, spherical or oval simple chambers). The *Triaxonia* comprise two groups: the *Hexactinellida* (with siliceous skeleton), and the *Hexaceratina* (with horny or no skeleton). The *Hexaceratina* consist of three families: (1) *Darwinellidae*, with horny fibres and horny spicules; (2) *Aplysillidae*, with horny fibres only; (3) *Halisarcidae*, without skeleton. This last family is possibly not a natural one, its two genera—*Halisarca* and *Bajulus*—are perhaps of different origin.

MAAS (44) discusses the question as to whether the three layers, of which adult Sponges are generally considered to consist, are derived from three or two germinal layers. Recent researches—histological (Topsent, Minchin), and embryological (Schulze)—point towards two germinal layers. The author's observations on the development of *Esperia* confirm such a theory. There are two layers in the larva of *Esperia*. The one is made of slender flagellated cells, and covers the anterior and lateral portions of the larva; the other is much more bulky, forms the central and posterior mass, and, even at this stage, contains spicules. Whilst the former of the two layers gives rise only to the endoderm, the latter forms all other tissues of the Sponge. It consists of two kinds of cells in the larval stage. The one kind has a granular protoplasm, and forms, later on, the amœboid wandering cells; the other kind of cells has a homogeneous protoplasm, their nuclei show an intranuclear network; these cells form the "ectoderm" and the "cellules contractiles" of Topsent; and, last of all, the glandular cells, which secrete the spongin. Thus we have two germinal layers, which may be called "Ectomesoderm" and "Endoderm."

MARSHALL (46) describes a new form of spicules from *Foliolina lendenfeldii*, n. sp., called Gomphostyles, from their nail-like shape. The head of the spicule is flattened out at right angles to its axis. The axis is twisted.

MINCHIN (49) describes the ectoderm of *Leucosolenia clathrus* as consisting, in the expanded state, of flattened, non-ciliated cells. The cells, when contracting, assume a mushroom form, the nucleus remaining in proximity to the limiting membrane. The pores originate in certain ectoderm cells, which grow inwards until they join the endoderm cells, thus forming a complete connection between ectoderm and endoderm. These cells then become perforated. The fully-formed pore, therefore, lies in one single cell. Mesoderm and endoderm are also discussed.

MINCHIN (51) describes a sieve-like membrane across the oscula of *Leucosolenia* (probably *L. coriacea*), which consists of two layers of cells separated by a small amount of jelly. The outer layer of cells is continuous with the ectoderm, the inner with the endoderm. The sieve-like membrane is probably formed by a breaking through of the gastral cavity to the exterior. The author was not able to see distinct ectoderm cells, and thinks that in the fully-formed Sponge they may degenerate into a cuticle-like structure. In the mesoderm he noticed irregular granular

cells, which he considers identical with Topsent's "cellules digestives." [Compare Topsent's critical remarks.]

MINCHIN (52) has discovered large and distinct oscula in *Leucosolenia clathrus*, which was formerly supposed to be lipostomous. The oscula may be closed by means of a sphincter, the contractile cells of which are ectodermal. Therefore Hæckel's four varieties of the Sponge correspond merely to different states of contraction of the same form. The appearance of a many-layered endoderm is caused by contraction of the Sponge.

RAUFF (60) discusses the *Polysteganinæ*, a curious group of fossil *Calcareæ*. He states that they do not essentially differ from recent forms; that the so-called Pharetronic fibre is a secondary product, caused by fossilization; and that the spicules of these Sponges were originally not held together by spongin, or by any other cementing substance.

RAUFF (61) speaking of the skeleton of the *Anomocladina*, opposes the views of Zittel, Sollas, and Hinde, and maintains that the regular tetraxon is the original type of the anomocladinous spicule.

TOPSENT (65) criticizes Minchin's paper (Note on a Sieve-like Membrane, &c.), and is surprised that Minchin thinks the ectoderm cells degenerate into a kind of cuticle, as he himself never experienced any difficulty in demonstrating their outlines by using nitrate of silver. Topsent adds that he agrees with Dendy and Minchin in doubting Lendenfeld's statement that all *Calcareæ* are covered by ciliated epithelium. Topsent further says that Minchin in his remarks on the mesoderm, has confused two kinds of elements, the spherical and the granular. According to Topsent, it is the spherical cells which have the function of nutritive reservoirs. [N.B. Minchin was well aware, as he states, that his observations on the ectoderm and mesoderm were not complete.]

TOPSENT (67) contributes an important memoir to our knowledge of the Sponges of the North Atlantic, one of the Results of the Scientific Expeditions of Albert I., Prince of Monaco. The volume is got up in princely style. Its chief value lies in Systematic and Geographical Distribution.

On p. 8 Topsent gives a summary of the histology of Sponges. The ectoderm consists of one kind of cells only (pinnacocytes, Sollas), which are flat, contractile, non-ciliated (with a few exceptions, as *Oscarella lobularis*, *Placina monolopha*, &c., which are ciliated). The endoderm appears in two forms: in contractile cells (similar to ectoderm cells), and in choanocytes. The muscular elements, or myocytes, are possibly also derived from endoderm. Finally, the mesoderm consists of two kinds of cells: (1) Granular cells, of variable shape, amoeboid, and colourless when young, pigmented when full-grown, corresponding to Sollas's inocytes and sarcocytes, called by Topsent "pigmented digestive cells." They have also reproductive function. (2) Non-granular, spherical, clear cells, corresponding to Sollas's chondrocytes, collencytes, and cystocytes. Generally large in Tetractinellida. Normally they store up reserve-

materials (thesocytes). Finally, as they serve also as connective elements, they correspond, perhaps, in part to Sollas's inocytes. The pigment of Sponges may be in the granular mesoderm cells, or in the flagellated cells. Sollas's chromatocytes, therefore, do not correspond to a special kind of cells. The æsthocytes have probably the function suggested by Sollas.

VOSMAER (68) has a paper on the canal system of *Homocœla*, and the morphological value of the terms osculum and pore. According to him, the main excurrent tubes of *Leucosolenia stipitata*, *L. tripodifera*, of a Sycon, and of *Hexactinellida*, are homologous, and are the simplest modifications of the original Olynthus-sack without diverticula. The central cavity of these Sponges he calls cloaca, and its aperture osculum. Procts are the openings of canals or lacunæ into the cloaca. Proctions are the numerous small openings in Sponges like *Cydonium gigas*, where the excurrent canals are covered by a sieve-like membrane. Stomions are the apertures in the dermal membrane of *Cydonium*. A group of stomions corresponds to one stoma.

## B. EMBRYOLOGY AND ASEXUAL DEVELOPMENT.

DELAGE (9), who last year gave a short preliminary account of the development of *Spongilla fluviatilis* now gives a detailed description of that species, and also of *Esperella sordida*, and *Aplysilla sulfurea*. Last year's paper was received with grave doubts by Minchin (Zoological Record 1891) and Maas (see this Record, p. 12), and now Spongologists will probably not be more ready than before to accept an account which, as Delage himself says, is "sans analogue dans les autres classes du règne animal." The larvæ of the above Sponges are almost entirely opaque, and therefore Delage's accounts of the extraordinary movements of the amœboid cells, &c., were based upon sections only. But, although his plates seem faithful, still their interpretation needs confirmation by other workers. In the meantime, Maas's account of the development of *Esperella* recommends itself far more by its simplicity.

DELAGE distinguishes four kinds of elements in the larva of *Spongilla fluviatilis*: (1) ciliated, (2) epidermal, (3) amœboid, (4) intermediate cells. The ciliated cells cover the larva anteriorly and laterally. The epidermal cells are large, and form a discontinuous layer beneath the ciliated cells. [N.B. The author calls these cells "epidermal" throughout the text, but "ectodermal" in the explanation of plates.] The amœboid cells are very large, and constitute the chief mass of the body. Some of them are specialized to form the spicules. Finally, the intermediate cells stand between the epidermal and amœboid cells. The ciliated cells soon lose their cilia, become irregular in shape, separate from each other, and sink beneath the epidermal cells. The epidermal cells now come to lie along the surface and soon form a continuous epidermis. Then the amœboid cells become active, throw out their pseudopodia and capture the former ciliated cells, each being able to incorporate several of them

After that, the amœboid cells retract their pseudopodia and assume a nearly spherical shape, having a large nucleus in their centre, and around it about twenty small nuclei, derived from the captured cells. These are Delage's "groupes polynucléés." Gøtte and Maas regarded those small nuclei as yolk-granules. After a pause the "groupes polynucléés" become active once more, throw out pseudopodia, move somewhat away from each other, still being connected together by their pseudopodia, and thus form an irregular mesh-work. Finally, they approach each other and arrange themselves in circles, leaving a small cavity in their midst. Now the ciliated cells separate from the "groupes polynucléés," and arrange themselves so as to form the lining to those cavities. In this way the flagellated chambers are formed. After that, the formation of pores, oscula, &c., is described. The development of *Esperella sordida* and *Aplysilla sulfurea* agrees in its chief features with that of *Spongilla*.

MAAS (43) describes the metamorphosis of *Esperia lorenzi*, O. S. He begins his account at the stage when the larva is ready to leave the parent Sponge. It is then seen to be covered anteriorly and laterally by an exceedingly narrow columnar ciliated epithelium. Its posterior pole is not ciliated, and there can be made out, only on the closest examination, a flat epithelium continuous with the former. The nuclei of the ciliated cells are larger than the average diameter of the cells. Accordingly they cause a bulging out, and, in order to find sufficient space, arrange themselves in different levels, thus causing an appearance of several layers of nuclei. The internal mass of the larva [N.B. Maas avoids speaking of germinal layers.] consists of two kinds of cells. The one kind is usually round, with a coarse granular protoplasm, and a clear spherical nucleus. The other is of a spindle-shaped or amœboid form, has a homogeneous protoplasm, and an oblong nucleus with delicate intranuclear network. The arrangement of the spicules is very instructive: it apparently serves a double purpose, (1) to utilise all space as much as possible, (2) to balance the body equally when swimming. The megascleres lie in a dense bundle in the axis of the larva. Around the posterior end of that bundle, the rosettes are equally distributed, and, around its anterior end, the toxa. The larval period is only of short duration (from six to twenty-four hours), after which the larva settles down with its anterior pole, and becomes somewhat flattened. Also here, as in the larva, we find two kinds of tissue: small cells with small nuclei, apparently derived from the ciliated cells, but now lying ventrally and internally; and larger cells, derived from the inner mass of the larva, lying now dorsally and externally. The young Sponge, opaque at first, shows after the first day, here and there, lighter spaces, which, in sections, are seen to be subdermal cavities, ciliated chambers, and exhalant canals, in process of development. In regard to the development of the subdermal cavities, Maas agrees with Delage, and partially with Wilson, but not so in regard to the ciliated chambers. The cells with granular contents [groupes polynucléés, Delage] have nothing to do with the formation of the chambers. Independently of those cells, the small cells, formerly the ciliated cells of the larva, group and arrange

themselves so as to form the chambers. Some of them also form the exhalant canals. The two layers of tissue already mentioned, become the ectosome and choanosome of the adult Sponge. The last few pages of the paper are devoted to the further development of the Sponge, including skeleton, tissues, and oscula.

WELTNER (72) has some notes on the structure and development of the gemmules of *Spongillidæ*. The "Anlage" of the gemmule, and all later stages up to the time when the inner cuticle begins to be formed, consist of naked, amœboid, uninuclear cells. In the fully-developed gemmule, the cells of the inner mass are surrounded by a thin membrane, and show no longer an amœboid movement. Generally, these cells are of two sizes, small uninuclear and large binuclear. Before the contents of the gemmule prepare themselves to leave the capsule, its cells become again amœboid, and then they possess one, two, three, or four nuclei. Weltner says that Zykoff was not able to see any nuclei in the cells of the gemmules, because he stained whole pieces of Sponge instead of the sectionized gemmules, and the staining fluid is never able to penetrate the capsule. Nor did he examine the gemmules in the living condition. Little is known as to how the "Anlage" of the gemmule is formed. There are four possibilities: (1) Either it is formed from a single cell, which has the morphological value of an ovum: in this case the gemmule would be a morula; (2) or it is derived from several precisely similar mesodermal cells; (3) or from several heterogeneous cells of the mesoderm; (4) or, finally, the gemmule is formed from the cells of (two or three) germinal layers. In this case the gemmule would be a bud.

ZYKOFF (80), after a review of the literature on the subject, gives an account of his own researches on the formation of the gemmules in *Ephydatia fluviatilis*. Between the ordinary amœboid cells of the parenchym he noticed cells containing boat-shaped, shining granules. The granules are possibly a modification of albumen, and serve as reserve-stores, and the cells, containing the same, may be called yolk-cells. The first appearance of these cells is to be regarded as the first moment in the development of the gemmule. They, together with similar cells, which, however, have no yolk-granules, begin to show a creeping movement, and at the same time they increase in number. This increase is possibly not caused by division, but by other cells being attracted to the same centre. Contrary to Goette's statements, neither the canals nor the chambers take any part in the formation of the gemmules. Soon a division of the gemmule into two layers may be noticed: (1) a central mass, consisting of yolk-cells, and a few amœboid cells from the mesenchym; (2) a peripheral layer, consisting of several concentric rows of yolkless cells of the mesenchym, which pass over into the mesenchym of the Sponge. These peripheral cells gradually assume a club-shaped form, the thicker end of the cell lying outwards—and arrange themselves in a single layer. One part of the gemmule remains free from these cells: the hilus. The club-shaped cells are disc-like, flattened out on their inner ends, and there they begin to secrete a chitinous cuticle. The amphidiscs are formed outside

the club-shaped cells, and only afterwards, possibly by amœboid cells, pushed between the same, and assume a radial arrangement. Finally, the club-shaped cells leave their position, creep on the outside of the amphidiscs, and form there the second chitinous cuticle. The gemmule is now fully formed. The club-shaped cells are gradually absorbed. Zykoff was unable to see the central mass of the gemmule as consisting of polygonal cells (Vejdovsky), or to see nuclei in them (Korschelt & Heider). On the contrary, it appeared like a compact, shining, granular substance, without outlines of cells or nuclei. The nuclei are hidden by the yolk. [See Weltner, who differs greatly regarding this latter point.]

ZYKOFF (81) studied the development of *Ephydatia mülleri*, from gemmules which had been lying dry for about two years. Rather novel is the mechanical explanation which he gives of the formation of oscula. The young *Ephydatia* swims upon the surface of the water, its flat side being directed upwards, its convex side downwards. Any water taken up by it collects near the centre of the convex surface, pulls down the ectoderm, and finally breaks through it. The chambers are developed from certain cells of the parenchym cells, which divide and form a compact mass of small cells. A cavity appears in this mass, the cells arrange themselves in a layer, and as the chamber thus formed always lies in the neighbourhood of canals, and goes on increasing in size for some time, it is probable that the connection between chamber and canal is formed by a breaking through.

### (c) PHYSIOLOGY AND BIOLOGY.

For the physiology of Sponges, see GRIFFITHS (20) pp. 30-32 & 79-82, 184, 209, 349, & 378.

HORNELL (28) describes a case of commensalism of *Microciona plumosa* and an Annelid (*Leucodora cœca*).

BIDDER (3) on excretion in Sponges, see Anatomical, p. 7.

## III.—DISTRIBUTION.

### (A.) FAUNISTIC.

Atlantic, especially Bay of Biscay, Newfoundland, and the Azores ; TOPSENT (67).

Portugal : NOBRE (55).

Great Britain: Plymouth ; GARSTANG (18) : Puffin I. (North Wales) ; HERDMAN (24).

Norway : West Coast ; HERDMAN (25) : Fjord of Bergen ; APPELLÖFF (2).

Russia : Solowezki Is. (White Sea) ; CHWOROSTANSKY (17) : *Spongilide* of Russia ; ZYKOFF (82).

Germany : Lakes near Plön, in Holstein, *Spongillidæ* ; ZACHARIAS (78): *Spongillidæ* in the neighbourhood of Berlin ; WELTNER (71).

Galizia : Lubien, *Carterius stepanovii*, Petr., and *Heteromeyenia repens* Potts. The latter species, of which, however, the gemmulæ only were found, was previously not taken outside North America. WIERZEJSKI (76).

Adriatic : *Hexaceratina* ; LENDENFELD (42).

Palestine : Lake Tiberias, *Potamolepis barroisi*, n. sp. ; TOPSENT (66).

Japan : Sagami Bay, 100 faths., *Petrostoma schulzei*, n. g. & sp., representing a new order (*Lithones*) of *Calcarea* ; DÖDERLEIN (14).

Australia : *Calcarea Heterocæla* ; DENDY (11).

### (B.) GEOLOGICAL.

Cambrian : St. John, New Brunswick ; MATTHEW (47).

Ordovician : *Palæosaccus dawsoni*, n. g. & sp. (*Hexactinellid*), from Little Métis, Quebec, Canada ; HINDE (26).

Trias : Saxe-Altenburg ; GEINITZ : St. Cassian, Strata of Southern Tyrol ; OGILVIE (57).

Cretaceous (Upper) : from Meaulne in the département Maine-et-Loire, France. *Lithistidæ* only, no *Hexactinellidæ*. The absence of the latter can be accounted for by the fact that, amongst recent Siliceous Sponges also, the *Lithistidæ* live in a different depth (up to 350 faths.) from the *Hexactinellidæ* (up to 600 faths.). POČTA (59).

Tertiary : Lower Tertiary Strata, near Oamaru, Otago, New Zealand. *Monaxonida*, 70 species ; *Tetractinellida*, 22 species ; *Lithistida*, 7 species ; *Hexactinellida*, 11 species. Many of these Sponges have their nearest existing allies living in the Indian Ocean and in the Australian Seas ; but amongst others the genus *Guitarra*, Carter, has hitherto only been found in the Gulf of Mexico and the North Atlantic. Remarkable is the preponderance of *Monaxonida*, as generally the proportions have been reversed. In the Oamaru deposit, the delicate spicules of *Monaxonida* have been preserved equally as well as the larger spicules of the other groups. "The absence of these Sponge-spicules in the older rocks, is rather due to their having perished in the fossilization, than that they did not co-exist with those other groups whose remains have been in part preserved." HINDE & HOLMES (27).

## IV.—SYSTEMATIC AND CLASSIFICATION.

### 1. CALCAREA.

VON LENDENFELD (41) discusses the *Calcarea Homocæla* described by DENDY (Monograph of the Victorian Sponges, Part I), and substitutes his own nomenclature, viz. :—*Grantia labyrinthica* remains in *Grantia*, Lendenfeld ; while *Leucosolenia asconoides*, *canata*, *dubia*, *stolonifer*, and *ventricosa* are referred to *Ascandra* ; *lucasi*, *pelliculata*, *pulcherrima*, *stipitata*, and *tripodifera* to *Ascetta* ; *wilsoni* to *Leucopsis* ; *depressa* and *protogenes* doubtfully to *Leucopsis* or *Ascetta*.

DENDY (11) gives the following classification of the *Heterocæla* :—

Order HETEROCÆLA.

Family 1. *Leucascidæ*.

Genus. *Leucascus*, n. g.

Family 2. *Sycettidæ*.

Genera. *Sycetta* (Hæckel, emend.) ; *Sycon* (Risso, emend.) ;  
*Sycantha*, v. Lend.

Family 3. *Grantidæ*.

Genera. *Grantia* (Fleming, emend.) ; *Grantiopsis*, n. subg. ;  
*Ute* (Schmidt, emend.) ; subg. *Synute*, Dendy ;  
*Utella*, n. g. ; *Anamixilla* (Poléjæff, emend.) ;  
*Sycyssa*, Hæckel ; *Leucandra* (Hæckel, emend.) ;  
*Lelapia* (Gray, emend.) ; *Leucyssa*, Hæckel.

Family 4. *Heteropidæ*.

Genera. *Grantessa* (v. Lend., emend.) ; *Heteropia* (Carter, emend.) ; *Vosmaeropsis*, n. g.

Family 5. *Amphoriscidæ*.

Genera. *Heteropegma* (Poléjæff, emend.) ; *Amphoriscus* (Hæckel, emend.) ; *Syculmis* (Hæckel, emend.) ;  
*Leucilla* (Hæckel, emend.).

*Grantia vosmaeri*, Port Jackson, DENDY, P. R. Soc. Vict. (n.s.), v, p. 88, n. sp.

*Grantiopsis*, n. g., p. 73, for *G. cylindrica*, n. sp., Port Phillip, p. 90 ;

DENDY, P. R. Soc. Vict. (n.s.), v.

*Grantessa hispida*, Port Phillip, DENDY, P. R. Soc. Vict. (n.s.), v, p. 106, n. sp.

*Leucandra carteri*, p. 103, *gladiator*, p. 101, *phillipensis*, p. 100, *uteoides*, p. 178, Port Phillip, DENDY, P. R. Soc. Vict. (n.s.), v, n. spp.

*Leucascus*, n. g., p. 72, for *L. simplex*, p. 77, *clavatus*, p. 78, n. spp., Port Phillip, DENDY, P. R. Soc. Vict. (n.s.), v.

*Lithones*, new order ; DÖDERLEIN, pp. 143–145. For the reception of the single form, *Petrostoma schulzei*.

*Petrostoma*, n. g., for *P. schulzei*, n. sp., 100 faths., Sagami Bay, Japan ; DÖDERLEIN, Verh. Deutsch. Zool. Ges. ii, pp. 143–145.

*Sycon carteri*, St. Vincent's Gulf, p. 79, *minutum*, Port Jackson, p. 80, *ensiferum*, p. 81, *boomerang*, p. 82, Port Phillip, *giganteum*, St. Vincent's Gulf, p. 84, DENDY, P. R. Soc. Vict. (n.s.) v, n. spp.

*S. gelatinosum*, var. *whiteleggii*, p. 84, Port Jackson, DENDY, P. R. Soc. Vict. (n.s.) v, n. var.

*Synute*, n. g. for *S. pulchella*, n. sp., p. 2, Port Phillip ; DENDY, P. R. Soc. Vict. (n.s.) iv.

*Ute spiculosa*, p. 92, *spenceri*, p. 94, Port Jackson, DENDY, P. R. Soc. Vict. (n.s.) iv, n. spp.

*Utella*, n. g., DENDY, P. R. Soc. Vict. (n.s.) iv, p. 74. Type, *Sycandra hystrix*, Hæckel.

*Vosnaeropsis*, n. g., p. 76, for *V. depressa*, p. 110, *wilsoni*, p. 111, n. spp., Port Phillip ; DENDY, P. R. Soc. Vict. (n.s.) iv.

## 2. HEXACTINELLIDA.

- Chonelasma schulzei*, TOPSENT, (67) p. 33, pl. iii, fig. 3, & pl. vii, fig. 3, Atlantic, lat.  $33^{\circ} 26' 30''$  N., long.  $33^{\circ} 23'$  W., depth 1557 metres, n. sp.
- Hertwigiidae*, n. fam., TOPSENT, (67) p. 25, established for the reception of *Hertwigia fulcifera*, O. S., and *Trachycaulus gurlittii*, F. E. Schulze. *Rhabdodictyum delicatum*, O. S., comes close to it.
- Hexactinella grimaldii*, TOPSENT, (67) p. 34, pl. ii, figg. 1 & 2, & pl. vii, fig. 1, Atlantic, lat.  $38^{\circ} 33' 21''$  N., long.  $30^{\circ} 28' 54''$  W. (between Pico and San Jorge), depth 1300 metres, n. sp.
- †*Palaeosaccus*, n.g., p. 56, for *P. dawsoni*, n. sp., Shales of the Quebec Group, p. 57, pl. iv; HINDE.
- Periphragella lusitanica*, TOPSENT, (67) p. 31, pl. vi, fig. 4, & pl. vii, fig. 2, Atlantic, lat.  $39^{\circ} 22' 48''$  N., long.  $33^{\circ} 45' 30''$  W., depth 1384 metres, n. sp.
- †*Purisiphonia clarkei*, Bowerb., shown to be a Lyssakine Hexactinellid; JACK & ETHERIDGE, (29) pp. 436-439, pl. xix.

## 3. TETRACTINELLIDA (with CHONDROSIDÆ, PLAKINIDÆ, HALISARCA, and OSCARELLA).

- Astellia tuberosa*, TOPSENT, (67) p. 44, pl. ii, fig. 4, & pl. viii, fig. 4, Atlantic, lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres, n. sp.
- †*Astrocladia fratectosa*, n. sp., POCTA, MT. min. geol. Mus. Dresden, xi, p. 19, pl. ii, figg. 4 & 5, Upper Cretaceous, Meaulne, France.
- Calthropella simplex*, Sollas, var. *durissima*, n. var.; TOPSENT, (67) p. 43, pl. v, fig. 14, and pl. viii, fig. 9, Atlantic, lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres.
- Characella sollasi*, n. sp., TOPSENT, (67) p. 40, pl. ii, fig. 3, & pl. viii, fig. 6, Atlantic, lat.  $43^{\circ} 57'$  N., long.  $9^{\circ} 27'$  W., depth 300 metres; lat.  $38^{\circ} 22'$  N., long.  $30^{\circ} 34' 39''$  W., depth 736 metres; and lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres.
- †*Chenendopora batillacea*, p. 7, pl. ii, figg. 1-3, *conferta*, p. 8, pl. iv, figg. 17-20, *radicata*, p. 10, pl. i, figg. 13-16, & pl. ii, fig. 16, *C. ? scutula*, p. 9, pl. iii, figg. 12-14, Upper Cretaceous, Meaulne, France, POCTA, MT. min. geol. Mus. Dresden, xi, n. spp.
- Discodermia ramifera*, n. sp., TOPSENT, (67) p. 50, pl. vi, fig. 10, & pl. viii, fig. 1, Atlantic, lat.  $38^{\circ} 23' 30''$  N., long.  $30^{\circ} 20' 20''$  N., depth 318 metres.
- †*Ditricenella*, n. g. for *D. oamaruensis*, n. sp., Lower Tertiary, New Zealand, HINDE & HOLMES, J. L. S. xxiv, p. 232, pl. xii, figg. 34 & 35.
- Erylus nummulifer*, n. sp., TOPSENT, (67) p. 47, pl. iii, fig. 14, & pl. viii, fig. 5, Atlantic, lat.  $38^{\circ} 22'$  N.,  $30^{\circ} 34' 39''$  W., depth 736 metres, and lat.  $38^{\circ} 23' 30''$  N., long.  $30^{\circ} 20' 20''$  W., depth 318 metres.

- Haliscarca dujardini*, redescribed, pp. 292-296, pl. xiii, figg. 25-27, *H. dujardini*, var. *incrustans*, n. var., *H. dujardini*, var. *massa*, n. var., p. 293, Triest; LENDENFELD, Z. wiss. Zool. liv.
- + ? *Isoraphinia gibbosa*, n. sp., PÖCTA, MT. min. geol. Mus. Dresden, xi, p. 11, pl. iii, fig. 1: pl. iv, figg. 4 & 5, Upper Cretaceous, Meaulne, France.
- + *Jerea clavata*, pl. iv, figg. 10-13, *J. ? caulis*, pl. iii, figg. 8 & 9, p. 17, Upper Cretaceous, Meaulne, France; PÖCTA, *t. c.*: n. spp.
- + *Jereica permira*, n. sp., PÖCTA, *t. c.* p. 10, pl. ii, figg. 9-13, Upper Cretaceous, Meaulne, France.
- Pachastrella debilis*, n. sp., TOPSENT, (67) p. 42, pl. iii, fig. 8, and pl. viii, fig. 8, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres, and lat. 38° 23' 30" N., long. 30° 20' 20" W., depth 318 metres.
- + *Plakina australis*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 230, pl. xii, fig. 20, Lower Tertiary, Oamaru, Otago, New Zealand.
- + *Polyjerea indistincta*, n. sp., PÖCTA, MT. min. geol. Mus. Dresden, xi, p. 18, pl. iv, figg. 2 & 3, Upper Cretaceous, Meaulne, France.
- + *Siphonia piriformis*, var. *acuta*, n. var.; PÖCTA, *t. c.* p. 13, pl. iv, figg. 7-9, Upper Cretaceous, Meaulne, France.
- + *Spongodiscus tuber*, n. sp., PÖCTA, *t. c.* p. 21, pl. i, figg. 2-4, Upper Cretaceous, Meaulne, France.
- Tetilla truncata*, n. sp., TOPSENT, (67) p. 36, pl. viii, fig. 7, Atlantic, lat. 43° 40' N., long. 8° 55' W., Coast of Asturia, 134 metres.
- + *Triptolemus australis*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 232, pl. xiii, fig. 34, Lower Tertiary, near Oamaru, Otago, New Zealand.
- + *Vetulina oamaruensis*, n. sp., HINDE & HOLMES, *t. c.* p. 240, pl. xiii, figg. 31-33, Lower Tertiary, near Oamaru, Otago, New Zealand.

#### 4. MONAXONIDA (+ *Tethyadæ*).

TOPSENT, (67) pp. 63-65, proposes the following classification of the *Monaxonida* (chiefly after Ridley and Dendy), in which, however, the *Spongillidæ* have been left out altogether.

### Order MONAXONIDA, Ridley & Dendy.

#### 1. Suborder HALICHONDRINA, Vosmaer.

##### Family 1. *Homorrhaphidæ*, Ridley & Dendy.

##### Subfamily 1. *Chalininæ*, Ridley & Dendy.

##### Subfamily 2. *Renierinæ*, Ridley & Dendy.

##### Family 2. *Heterorrhaphidæ*, Ridley & Dendy.

##### Subfamily 1. *Phlaodictyinæ*, Carter.

##### Subfamily 2. *Trachyinæ*, n. s. f.

##### Genus *Trachya*, Carter.

Subfamily 3. *Gellinae*, Ridley & Dendy.

Subfamily 4. *Tedaniinae*, Ridley & Dendy.

Subfamily 5. *Desmacellinae*, Ridley & Dendy.

Genera *Desmacella*, Schmidt, *Biemma*, Gray.

Subfamily 6. *Hamacanthinae*, Gray.

Genus *Hamacantha*, Gray.

Family 3. *Desmacidonidae*, Vosmaer.

Subfamily 1. *Esperellinae*, Ridley & Dendy.

Genera: *Esperella*, Vosmaer; *Esperiopsis*, Carter; *Cladorhiza*, M. Sars; *Axoniderma*, Ridley & Dendy; *Chondrocladia*, W. Thomson; *Desmacidon*, Bowerbank; *Joyeuxia*, n. g.; *Phelloderma*, Ridley & Dendy; *Sideroderma*, Ridley & Dendy; *Histoderma*, Carter; *Dendoryx*, Gray; *Forcepia*, Carter; *Melonanchora*, Carter; *Yvesia*, n. g., *Iotrochata*, Ridley; *Amphilectus*, Vosmaer, &c.

Subfamily 2. *Ectyoninae*, Ridley & Dendy.

Genera: *Myxilla*, Schmidt; *Pytheas*, n. g.; *Clathria*, Schmidt; *Rhaphidophlus*, Ehlers; *Plumohalichondria*, Carter; *Stylostichon*, n. g.; *Microciona*, Bowerbank; *Hymenaphia*, Bowerbank; *Rhabderemia*, n. g.; *Plocamia*, Schmidt; *Suberotelites*, Schmidt; *Spanioplona*, n. g.; *Acarnus*, Gray; *Echinoclathria*, Carter; *Agelas*, Duchassaing & Michelotti; *Echinodictyum*, Ridley.

Family 4. *Axinellidae*, Ridley & Dendy.

2. Suborder SPINTHAROPHORA, Sollas (emend).

1. Section *Aciculida*, n. s.

Family 1. *Epallacidae*, new family.

Genera: *Epallax*, Sollas; *Scolopes*, Sollas; *Dorypleres*, Sollas.

Family 2. *Stylocordylidae*, new family.

Genus *Stylocordyla*, W. Thomson.

Family 3. *Tethyidae*, Gray.

2. Section *Clavulida*, n. s.

Family 1. *Spirastrellidae*, Ridley & Dendy.

Genera: *Spirastrella*, Schmidt; *Latrunculia*, du Bocage; *Hymedesmia*, Bowerbank.

Family 2. *Suberitidae*, Vosmaer.

Subfamily 1. *Suberitinae*, n. s.

Genera: *Suberites*, Nardo; *Weberella*, Vosmaer; *Poterion* Schlegel; *Osculina*, Schmidt, &c.

Subfamily 2. *Polymastinae*, n. s.

Genera: *Polymastia*, Bowerbank; *Ridleya*, Dendy; *Quasilina*, Norman; *Tentorium*, Vosmaer; *Trichostemma*, M. Sars; *Halicnemis*, Bowerbank; *Tethyspira*, Topsent.

Family 3. *Clionidae*, Gray.

Genera: *Cliona*, Grant; *Thoosa*, Hancock; *Alectona*, Carter.

- Apatospongia*, n. g. (*Suberitidae* ?), for *A. fallax*, n. sp., Australian Waters, MARSHALL, Leuckart Festschr., p. 16, pl. viii, figg. 1-5.
- Artemisina transiens*, n. sp., TOPSENT, (67) p. 94, pl. iv, fig. 8, pl. ix, figg. 7 & 8, Atlantic, lat. 43° 44' 50" N., long. 8° 12' W., depth 135 metres.
- Axinella flustra*, n. sp., TOPSENT, (67) p. 122, pl. ii, fig. 5, & pl. xi, fig. 18, Atlantic, lat. 43° 40' N., long. 8° 55' W., depth 134 metres, and lat. 38° 23' 30" N., long. 30° 20' 20" W., depth 318 metres.
- Biemma grimaldii*, p. 81, pl. iv, figg. 1-4, & pl. ix, fig. 14, Atlantic, lat. 38° 23' 45" N., long. 30° 51' 30" W., depth 927 metres; *B. dautzenbergi*, p. 83, pl. iii, fig. 5, & pl. ix, fig. 16, Atlantic, lat. 39° 22' 48" N., long. 33° 45' 30" W., depth 1384 metres, TOPSENT (67) : n. spp.
- Cladocroce*, n. g. (Lamelliform *Renierinae*), for *C. fibrosa*, n. sp., p. 72, pl. iii, figg. 1 & 2, Atlantic, lat. 38° 33' 21" N., long. 30° 28' 54" W. (between Pico and San Jorge, Azores), depth 1300 metres; TOPSENT (67).
- †*Cladorhiza haasti*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 210, pl. x, fig. 35, Lower Tertiary, Oamaru, Otago, New Zealand.
- Dendoryx*, Gray. TOPSENT, (67) p. 97, proposes the following definition : "*Esperellinae* generally without a definite shape; megascleres of the ectosome usually diactine (tylote, strongylote, or tornote), rarely monactine, normally smooth; megascleres of the skeleton invariably spined styli." The genus *Dendoryx* thus defined includes the genera *Dendoryx*, Gray, *Alebion*, *Iophon*, *Hastatus*, several species of *Myxilla*, &c. As types of the genus may be regarded: *D. incrustans*, Gray. *D. luciensis*, *certa*, and *pectinata*, Topsent.
- D. certa*, p. 99, pl. x, figg. 7 & 8, Atlantic, lat. 43° 40' N., long. 8° 55' W., depth 134 metres; *pectinata*, p. 100, pl. x, fig. 6, Atlantic, lat. 38° 48' 30" N., long. 30° 19' W., depth 861 metres; TOPSENT (67) : n. spp.
- Desmacella aberrans*, n. sp., TOPSENT, (67) p. 85, pl. ii, fig. 7, & pl. ix, fig. 10, Atlantic, lat. 43° 44' 50" N., long. 8° 12' W., depth 135 metres, and lat. 43° 40' N., long. 8° 55' W., depth 134 metres.
- Dorypleres incrustans*, n. sp., TOPSENT, (67) p. 126, pl. ix, fig. 21, Straits of Pico-Fayal (Azores), depth 130 metres.
- Esperiopsis columnata*, p. 90, pl. v, fig. 5, & pl. x, fig. 5, Atlantic, lat. 46° 4' 40" N., long. 49° 2' 30" W., depth 1267 metres; *polymorpha*, p. 90, pl. vi, figg. 1-3, & pl. x, figg. 1-3, Atlantic, lat. 38° 23' 45" N., long. 30° 51' 30" W., depth 927 metres, and lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres; *prædita*, p. 92, pl. x, fig. 4, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres; TOPSENT (67) : n. spp.
- Foliolina lendenfeldii*, n. sp., MARSHALL, Leuckart Festschr. p. 2, pl. i, & pl. vii, figg. 1-7c, locality unknown.
- Forcepia versatilis*, n. sp., TOPSENT, (67) p. 100, pl. vi, fig. 5, & pl. x, fig. 9, Atlantic, lat. 46° 4' 40" N., long. 49° 2' 30" W., depth 1267 metres.
- Gelliodes caviornis*, p. 78, pl. iii, figg. 4 & 9, & pl. ix, fig. 12, *fayalensis*,

- p. 78, pl. iii, fig. 13, & pl. ix, fig. 11, Straits between Pico and Fayal (Azores), depth 130 metres, TOPSENT (67), n. spp.
- Gellius macrosigma*, n. sp., TOPSENT, (67) p. 77, pl. ix, fig. 13, Atlantic, lat.  $38^{\circ} 22' N.$ ,  $30^{\circ} 34' 39'' W.$ , depth 736 metres.
- +*Guitarra carteri*, pl. xi, figg. 1-3, *intermedia*, figg. 4-7, p. 213, Lower Tertiary, near Oamaru, Otago, New Zealand, HINDE & HOLMES, J. L. S. xxiv, n. spp.
- Halichondria pachastrelloides*, p. 66, pl. ix, fig. 3, Atlantic, lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , depth 736 metres, *leuconoides*, p. 67, pl. v, fig. 4, Atlantic, lat.  $38^{\circ} 23' 30'' N.$ , long.  $30^{\circ} 20' 20'' W.$ , 318 metres, TOPSENT (67), n. spp.
- Hamacantha johnsoni*, Bow., var. *complanata*, n. var., pl. ii, fig. 9, *johnsoni*, Bow., var. *inelegans*, n. var., pl. i, fig. 4, Atlantic, lat.  $43^{\circ} 44' 50'' N.$ , long.  $8^{\circ} 12' W.$ , depth 135 metres; lat.  $38^{\circ} 26' 25'' N.$ , long.  $30^{\circ} 59' 10'' W.$ , depth 800 metres, and lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , depth 736 metres; TOPSENT, (67) p. 86.
- Hymeraphia tuberosocapitata*, p. 113, pl. xi, fig. 6, Atlantic, lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , depth 736 metres, *minima*, p. 114, figg. 2 & 3, Atlantic, lat.  $38^{\circ} 23' 30'' N.$ , long.  $30^{\circ} 20' 20'' W.$ , depth 318 metres, *geniculata*, p. 115, pl. 1, fig. 13, & pl. xi, figg. 4 & 5, Atlantic, lat.  $38^{\circ} 23' 30'' N.$ , long.  $30^{\circ} 20' 20'' W.$ , depth 318 metres, TOPSENT, (67) n. spp.
- +*Iophon hybridus*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 212, pl. x, fig. 44, Lower Tertiary, Oamaru, New Zealand.
- +*Joyeuxia*, n. g., p. 93, for *J. viridis*, n. sp., p. 94, pl. ii, fig. 8, & pl. x, fig. 19, Atlantic, lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , depth 736 metres, and lat.  $39^{\circ} 1' 40'' N.$ , long.  $30^{\circ} 15' 40'' W.$ , depth 454 metres; TOPSENT (67).
- +*Lasiocladia*? *hindei*, n. sp., ETHERIDGE, (29) p. 199, pl. xli, figg. 1 & 2.
- Iatrunculia biannulata*, p. 127, Atlantic, lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , 736 metres; *insignis*, p. 128, pl. viii, fig. 11, Atlantic, lat.  $38^{\circ} 22' N.$ , long.  $30^{\circ} 34' 39'' W.$ , depth 736 metres; TOPSENT, (67), n. spp.
- +*L. oamaruensis*, p. 218, pl. xi, fig. 34, *obtus*, p. 220, fig. 32, Lower Tertiary, Oamaru, New Zealand, HINDE & HOLMES, J. L. S. xxiv, n. spp.
- +*Melonanchora morlandi*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 200, pl. ix, fig. 38, Lower Tertiary, Oamaru, New Zealand.
- Myxilla pecqueryi*, n. sp., TOPSENT, (67) p. 110, pl. x, fig. 8, Atlantic, lat.  $39^{\circ} 2' 48'' N.$ , long.  $33^{\circ} 45' 30'' W.$ , depth 1384 metres.
- Petrosia friabilis*, n. sp., TOPSENT, (67) p. 69, pl. vi, fig. 8, & pl. ix, fig. 4, Atlantic, lat.  $43^{\circ} 40' N.$ , long.  $8^{\circ} 55' W.$ , depth 134 metres; lat.  $43^{\circ} 57' N.$ , long.  $9^{\circ} 27' W.$ , depth 300 metres; lat.  $38^{\circ} 23' 45'' N.$ , long.  $30^{\circ} 51' 30'' W.$ , depth 927 metres, Straits between Pico and Fayal (Azores), depth 130 metres.
- Plumohalichondria*, Carter. TOPSENT, (67) p. 111, proposes to break up this genus into two genera, according to whether the ascending fibres are made up of smooth diactine spicules or of spined monactine spicules. The former species are included under the genus *Plumo-*

*halichondria*, the latter constitute the new genus *Stylostichon* (see below). The genus *Plumohalichondria* is accordingly defined *Ectyonina*, the main skeleton of which consists of plumose ascending fibres. The spicules of the true main skeleton are smooth diactines. Type, *Plumohalichondria mammillata*, Carter.

*Polymastina*, n. subfam. *Suberitidæ*; q.v. TOPSENT (67).

*Potamolepis barroisi*, n. sp., TOPSENT, Rev. Biol. v, pp. 85-92, 1 pl., Lake Tiberia, depth 8 metres.

†*Pseudohalichondria deformis*, p. 214, pl. xi, figg. 8 & 9, *oamaruensis*, p. 215, figg. 12 & 13, Lower Tertiary, Oamaru, New Zealand, HINDE & HOLMES, J. L. S. xxiv, n. spp.

*Pytheas*, n. g. for *P. ater*, n. sp., p. 110, pl. i, fig. 1, & pl. xi, fig. 1, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres, and including *Hymedesmia inflatus*, Bow.; TOPSENT (67).

*Raspailia* (*Syringella*) *humilis*, p. 123, pl. v, fig. 11, & pl. xi, fig. 20, Atlantic, lat. 38° 23' 30" N., long. 30° 20' 20" W., depth 318 metres, *falcifera*, p. 124, pl. vi, fig. 6, & pl. xi, fig. 19, Atlantic, lat. 38° 33' 21" N., long. 30° 28' 54" W. (between Pico and San Jorge), depth 1300 metres, TOPSENT, (67), n. spp.

*Reniera filholi*, n. sp., TOPSENT, (67) p. 70, pl. iv, fig. 7, & pl. ix, fig. 6, Atlantic, lat. 43° 40' N., long. 8° 55' W., depth 134 metres.

*Rhabderemia*, n. g., p. 115, for *R. guernei*, n. sp., p. 116, pl. xi, fig. 7, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres, including also *Microciona pusilla* and *intexta*, Carter; TOPSENT (67).

*Rhizochalina elongata*, n. sp., TOPSENT, (67) p. 75, pl. iv, figg. 5 & 6, & pl. ix, fig. 1, Atlantic, lat. 38° 23' 30" N., long. 30° 20' 20" W., depth 318 metres.

*Spanioplou*, n. g., p. 116, for *S. fertile*, n. sp., p. 117, pl. xi, fig. 11, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres, TOPSENT (67).

*Spheciospongia*, n. g. for *Spheciospongia* (*Alcyonium*) *vesparum*, Lamarck, (*Suberitidæ*), MARSHALL, Leuckart Festschr. p. 32.

*Spirastrella aculeata*, n. sp., TOPSENT, (67) p. 127, pl. viii, fig. 10, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres.

*Suberitidæ*, redefined by TOPSENT, (67) p. 59: *Clavulida* without microcleres derived from an aster. Two subfamilies: (a) *Suberitina*: *Suberitidæ*, without radiating structure, including the genera *Suberites*, *Weberella*, *Poterion*, *Osculina*, &c.; (b) *Polymastina*: *Suberitidæ*, the skeleton of which normally assumes a radiating structure, including the genera *Polymastia*, *Quasillina*, *Tentorium*, *Trichostemma*, *Halicnemia*, *Tethyspira*.

*Suberites capillitium*, n. sp., TOPSENT, (67) p. 130, pl. ii, fig. 10, & pl. ix, figg. 19 & 20, Atlantic, lat. 46° 4' 40" N., long. 49° 2' 30" W., depth 1267 metres.

*Suberotelides demonstrans*, n. sp., TOPSENT, (67) p. 118, pl. iv, fig. 9, & pl. xi, figg. 15-17, Atlantic, lat. 38° 22' N., long. 30° 34' 39" W., depth 736 metres.

- Stylinos*, n. g., (= *Desmacidonidae*), p. 135, for *Desmacidon pannosus*, Bwk., *incognitus*, B., *Rhaphiodesma simplicissimum*, B., *Isodictya uniformis*, B., *Desmacidon columella*, B., and including *jullieni*, n. sp., Fayal, p. 137, pl. i, fig. 12, & pl. vii, figg. 11 & 12; TOPSENT (67).
- Stylostichon*, n. g., p. 111, for *Spongia plumosum*, Mont.; *Myxilla frondosum*, R. & D.; *Plumohalichondria microcionides*, Carter, and *dendyi*, n. sp., p. 112, pl. ii, fig. 6, pl. xi, figg. 9 & 10, Atlantic, lat.  $38^{\circ} 23' 30''$  N., long.  $30^{\circ} 20' 20''$  W., depth 318 metres, TOPSENT (67).
- Tedania conuligera*, n. sp., TOPSENT, (67) p. 79, pl. i, fig. 16, Atlantic, lat.  $46^{\circ} 50' 6''$  N., long.  $50^{\circ} 11' 45''$  W., depth 155 metres.
- +*Thoosa hancocki*, n. sp., HINDE & HOLMES, J. L. S. xxiv, p. 222, pl. xi, fig. 41, Lower Tertiary, Oamaru, New Zealand.
- Trachyinae*, n. subfam. (not defined) of the *Heterorhaphidae*, for *Trachya*, Carter; TOPSENT, (67) p. 62.
- Trachya hystrix*, n. sp., TOPSENT, (67) p. 75, pl. i, figg. 8, 9, 10, & pl. xi, figg. 12, 13, 14, Atlantic, lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres, and lat.  $38^{\circ} 23' 30''$  N., long.  $30^{\circ} 20' 20''$  W., depth 318 metres.
- Tragosia hironellei*, n. sp., TOPSENT, (67) p. 120, pl. vi, fig. 7, & pl. ix, fig. 5, Atlantic, lat.  $43^{\circ} 40'$  N., long.  $8^{\circ} 55''$  W., depth 134 metres.
- Trinacophora ? spissa*, n. sp., TOPSENT, (67) p. 124, pl. vi, fig. 12, & pl. ix, fig. 9, Atlantic, lat.  $38^{\circ} 23' 30''$  N., long.  $30^{\circ} 20' 20''$  W., depth 318 metres.
- Trochospongilla horrida*, n. sp., WELTNER, SB. nat. Fr. 1893, p. 12. Synonym for *Non Spongilla erinaceus*, Ehrenberg, *Spongilla erinaceus*, Lieberkühn, &c.
- Yvesia*, n. g., p. 102, for 16 species, 8 of which are old, viz., *Cribrella elegans*, *hospitalis*, *papillosa*, O. S., *Grayella cyathophora*, Carter, *Halichondria albula*, Bwk., *Sclerilla dura*, *arctica*, Hansen, and 8 new, viz., *Y. pedunculata*, pl. v, fig. 6, & pl. x, fig. 17, Atlantic, lat.  $43^{\circ} 57'$  N., long.  $9^{\circ} 27'$  W., depth 300 metres, *guernei*, pl. iii, fig. 7 & pl. x, fig. 16, p. 105, Atlantic, lat.  $43^{\circ} 40'$  N., long.  $8^{\circ} 55'$  W., depth 134 metres, Atlantic, lat.  $46^{\circ} 4' 40''$  N., long.  $49^{\circ} 2' 30''$  W., depth 1267 metres, *fallax*, p. 106, pl. vi, fig. 13, & pl. x, fig. 14, Straits of Pico-Fayal (Azores), depth 130 metres, *hanseni*, p. 106, pl. vi, fig. 9a, & pl. x, fig. 13, Atlantic, lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres, *richardi*, p. 107, pl. x, fig. 15, Atlantic, lat.  $38^{\circ} 22'$  N., long.  $30^{\circ} 34' 39''$  W., depth 736 metres, *ridleyi*, pl. x, fig. 12, Atlantic, lat.  $38^{\circ} 22'$  N., long.  $30^{\circ} 34' 39''$  W., depth 736 metres, *pertusa*, pl. iv, fig. 10, & pl. x, fig. 18, p. 107, Atlantic, lat.  $39^{\circ} 1' 40''$  N., long.  $30^{\circ} 15' 40''$  W., depth 454 metres, *linguifera*, p. 108, pl. x, figg. 10 & 11, Atlantic, lat.  $38^{\circ} 22'$  N., long.  $30^{\circ} 34' 39''$  W., depth 736 metres, TOPSENT (67).

## 5. KERATOSA.

*Aplysilla rosea*, pp. 290 & 291, *sulfurea*, pp. 284-290, pl. xiii, figg. 1-15, Triest and Lesina, redescribed; LENDENFELD, Z. wiss. Zool. liv.

*Darwinella aurea*, redescribed; LENDENFELD, t. c. pp. 278-283, pl. xiii, figg. 16-24, Lesina.

## INCERTÆ SEDIS.

†*Stellispongia*, St. Cassian, Tyrol, OGILVIE, p. 48, Q. J. Geol. Soc. xlix, n. sp. (*sic.*)

†*Spongia*, n. g. (*sic.*), OGILVIE, l. c.

No description or illustration is given of these two Sponges.

## XVIII. PROTOZOA.

BY

R. HANITSCH, Ph.D.

---

### I.—LIST OF PUBLICATIONS.\*

1. ANONYMOUS. Die neuesten Fortschritte auf dem Gebiete der Peridineen-Forschung. Naturwissenschaftliche Wochenschrift, vii, No. 18, pp. 173-179.
2. APÁTHY, S. Kritische Bemerkungen über das Frenzelsche Mesozoon *Salinella*. Eine biologische Skizze. Biol. Centralbl. xii, pp. 108-123. Abstract in Ann. N. H. (6) vi, p. 465.
3. APPELLÖFF, A. Om Bergensfjordenes faunistike præg. Bergens Mus. Aarsber. 1891.  
*Foraminifera*, p. 5.
4. APSTEIN, C. Ueber das Plankton des Süßwassers. Schr. Nat. Ver. Schleswig, ix, 2, pp. 313-316.  
*Protozoa*, p. 316.
5. BALBIANI, E. G. Nouvelles recherches expérimentales sur la mérotomie des Infusoires ciliés. Ann. Micrograph. 1892, 79 pp., 3 pls. Abstracts in J. R. Micr. Soc. 1892, pp. 803-805, and in Bibliographie Anatomique, i, No. 1, p. 15.
6. BARROIS, C. Sur la présence de fossiles dans le terrain azoïque de Bretagne. C.R. cxv, No. 6, pp. 326-328.  
Fossil *Radiolaria*.
7. BASSETT-SMITH, P. W. On the Deep-sea Deposits of the Eastern Archipelago. J. R. Micr. Soc. 1892, p. 443.

---

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

8. BERTRAM, —. Beiträge zur Kenntniss der Sarcosporidien nebst einem Anhang über parasitische Schläuche in der Leibeshöhle von Rotatorien. Zool. Jahrb. v, hft. 3 & 4, pp. 581-604, 3 pls. Abstract in J. R. Micr. Soc. 1893, p. 56.  
1 new species.
9. BIEDERMANN, R. Ueber die Structur der Tintinnen-Gehäuse. Kiel (Lipsius & Tischer): 1892, 4to, 38 pp., 3 pls.
10. BLANC, H. Protistes dragués au fond du lac Léman appartenant au genre *Diffugia*. Compt. rend. trav. 74 sess. Soc. Helv. Sc. Nat. pp. 55 & 56.
11. —. Étude sur les Protistes du fond du Léman. Arch. Sci. Nat. xxvii, No. 4, p. 472.
12. —. Les Diffugies de la faune profonde du Lac Léman. Extrait du Recueil inaugural de l'Université de Lausanne. Lausanne (Viret-Genton): 1892, 4to, 11 pp., 1 pl. Abstract in Bibliographie Anatomique, i, No. 1, p. 16.  
1 new species.
13. BLES, E. J. Notes on the Plankton observed at Plymouth during June, July, August, and September, 1892. J. Mar. Biol. Ass. (n.s.) ii, No. 4, pp. 340-343.  
*Dinoflagellata*, pp. 341 & 343.
14. BORGERT, A. Vorbericht über einige Phaeodarien- (Triplyleen) Familien der Plankton-Expedition. Ergebnisse der Plankton Expedition, I. A., pp. 176-184, 1 pl.  
5 new species.
15. BRANDT, K. Ueber Anpassungserscheinungen und Art der Verbreitung von Hochseethieren. In Reisebeschreibung d. Plankton-Expedition, pp. 338-370, 1 map.  
Hydrostatic apparatus of *Protozoa*, pp. 341-344.
16. BRAUN, M. Nachträge und Berichtigungen zum zoologischen Theil von "Die landeskundliche Literatur über die Grossherzogthümer Mecklenburg," &c. Arch. Ver. Mecklenb. xlv, pp. 87-95.  
*Protozoa*, pp. 93-95.
17. BÜTSCHLI, O. Untersuchungen über mikroskopische Schäume und das Protoplasma. Verh. deutsch. Zool. Ges. 1891, pp. 14-20. Abstract in J. R. Micr. Soc. 1892, pp. 17 & 18.
18. CARTER, F. B. *Radiolaria*: their Life-history and their Classification. Am. Micr. J. xiii, pp. 63 & 64, 111-113, 143-145, 177-180, 216-219.
19. CERTES, A. Sur la vitalité des germes des organismes microscopiques des eaux douces et salées. C.R. cxiv (1892), pp. 425-428. Abstract in J. R. Micr. Soc. 1892, p. 379.

20. CHAPMAN, F. The *Foraminifera* of the Gault of Folkestone, II. J. R. Micr. Soc. 1892, pp. 319-330, 2 pls.  
6 new species, 1 new variety.
21. —. The *Foraminifera* of the Gault of Folkestone, III. J. R. Micr. Soc. 1892, pp. 749-758, 2 pls.  
1 new species, 1 new variety.
22. —. Some new forms of Hyaline *Foraminifera* from the Gault. Geol. Mag. (n.s.) (3) ix, pp. 52-54, 1 pl.  
1 new genus, 1 new species, 1 new variety.
23. CHASTER, G. W. *Foraminifera* of Southport. Report of the Southport Society of Natural Science, i (1890-91), pp. 54-72, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 379.  
10 new species.
24. CONDORELLI, M., & FIORE, C. DE. Un caso di psorospermosi in un *Coccothraustes vulgaris*. Boll. Soc. Rom. Studi. Zool. i, pp. 68-74.
25. COOKE, J. H. The Marls and Clays of the Maltese Islands. Q. J. Geol. Soc. xlix, pt. 1, pp. 117-128, 4 woodcuts.  
31 species of *Foraminifera*, none new.
26. CORTI, B. Foraminiferi e Radiolari fossili delle sabbie gialle plioceniche della collina fra Spiechio e Limite sulla sponda destra dell' Arno. Boll. Scient. xiv, Nos. 2 & 3, pp. 61-70, 1 pl.  
2 new species, 2 new varieties.
27. —. Foraminiferi e Diatomee fossili del pliocene di Castenedolo. Rend. Ist. Lombardo (2) xxiv, fasc. 15 & 16, pp. 991-1012, 1 pl.
28. CUÉNOT, L. Protozoaires commensaux et parasites des Échinodermes (Note préliminaire). Rev. Biol. iii (1891), pp. 285-300, pl. v. Abstract in J. R. Micr. Soc. 1892, p. 54.  
4 new species.
29. —. Commensaux et Parasites des Échinodermes (Deuxième Note). Rev. Biol. v, pt. 1 (Oct. 1892), pp. 1-23, 1 pl.  
*Sporozoa*, pp. 1-6 ; *Ciliata*, pp. 6-8.
30. DANGEARD, P. A. La nutrition animale des Péridiniens. Le Botaniste (Dangeard), iii (1892), pp. 7-25, 1 pl.
31. —. Note sur un *Cryptomonas* marin. T. c. p. 32, 1 fig. Abstract in J. R. Micr. Soc. 1892, p. 380.  
1 new species.
32. DANILEWSKY, —. Contribution à l'étude de la microbiose malarique. Annales Inst. Pasteur, 1891, p. 578. Abstracts in CB. Bakt. Parasit. xi (1892), pp. 513-515, and in J. R. Micr. Soc. 1892, pp. 626 & 627.
33. DAWSON, J. W. Carpenter on Eozoon. Nature, xlv, p. 461.
34. —. On Eozoon. T. c. p. 606.

35. DERVIEUX, E. Studio dei Foraminiferi pliocenici di Villarvernia. *Atti Acc. Tor.* xxvii, pp. 376-379.
36. DOCK, G. Studies in the etiology of malarial infection and of the haematozoon of Laveran. *Medical News*, July 19th, 1890. Abstracts in *CB. Bakt. Parasit.* x (1891), p. 254, and in *J. R. Micr. Soc.* 1892, p. 53.
37. DÖDERLEIN, L. [Land-Foraminiferen von Japan.] *Verh. deutsch. Zool. Ges.* ii (1892), pp. 145 & 146.  
1 new genus and species.
38. DREYER, F. Ziele und Wege biologischer Forschung, beleuchtet an der Hand einer Gerüstbildungsmechanik. Jena (G. Fischer) : 1892, 8vo, xii & 103 pp., 6 pls.
39. —. Die Principien der Gerüstbildung bei Rhizopoden, Spongien, und Echinodermen. (Fortsetzung.) *Jen. Z. Nat.* xxvi (n. f. xix), pp. 297-468, 10 pls. Abstract in *J. R. Micr. Soc.* 1892, p. 767.
40. ENTZ, G. Die elastischen und contractilen Elemente der Vorticellinen. *Math. Nat. Ber. Ung.* x, hft. 1, pp. 1-48, 3 pls.
41. FAGGIOLI, F. De l'action délétère du sang sur les Protistes. *Arch. Ital. Biol.* xvi, fasc. 2 & 3, pp. 276-285.
42. FOÀ, P. Ueber die Krebsparasiten. *CB. Bakt. Parasit.* xii (1892), pp. 185-192, 2 pls. Abstract in *J. R. Micr. Soc.* 1892, pp. 807 & 808.
43. FORNASINI, C. Secondo Contributo alla conoscenza della microfauna terziaria italiana. *Mem. Acc. Bologn.* (5) i, (1890), pp. 109-115, 1 pl.
44. —. Terzo Contributo alla conoscenza della microfauna terziaria italiana. *Op. cit.* ii, pp. 213-221, 1 pl.  
On Pliocene forms of *Nodosaria obliqua*.
45. FOX, H., & TEALL, J. J. H. On a Radiolarian Chert from Mullion Island. *Q. J. Geol. Soc.* xlix, pp. 211-218, 1 pl., 1 map. [Part iv of same paper HINDE, G. J., Note on the *Radiolaria* in the Mullion Island Chert, pp. 215-218, 1 pl.]  
10 species of *Radiolaria*, partly undetermined, none described as new.
46. \*FRANCAVIGLIA, M. C., & FIORE, C. DE. [*Psorospermium avium* in *Coccothraustes vulgaris*.] *Boll. Soc. Rom. Stud. Zool.* i (1892), pp. 68-74, 1 fig. Abstract in *J. R. Micr. Soc.* 1892, p. 495.
47. FRENZEL, J. A new form of *Trichonymphidæ*. *J. R. Micr. Soc.* 1892, pp. 52 & 53. Abstract of paper in *Arch. mikr. Anat.* xxxviii, pp. 301-316. [See *Zool. Rec.* 1891.]
48. —. Remarkable Argentine Protozoa. *J. R. Micr. Soc.* 1892, pp. 219 & 220. Abstract of paper in *Z. wiss. Zool.* liii, pp. 334-360, 1 pl. [See *Zool. Rec.* 1891.]
49. —. A multicellular Infusorian-like Animal. *Ann. N. H.* (6) vi, pp. 109-111. Abstract of paper in *Arch. f. Nat.* lviii, pp. 66-96, 1 pl. [See *Zool. Rec.* 1891.]

50. [FRENZEL, J.] Das Mesozoon *Salinella*. Biol. Centralbl. xi, pp. 577-581. Translated in Ann. N. H. (6) vi, pp. 79-84.
51. —. Ueber einige argentinische Gregarinen. Ein Beitrag zur Organisation und Physiologie der Gregarinen überhaupt. Jen. Z. Nat. xxvii (1892), pp. 233-336, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 805.  
5 new species.
52. —. Untersuchungen über die mikroskopische Fauna Argentiniens. I. Theil: Die Protozoen. I. & II. Abtheilung: Die Rhizopoden und Helioamoeben. Bibl. Zool. xii (1892), pp. 1-82, 6 pls. Abstract in J. R. Micr. Soc. 1892, pp. 624 & 625.  
12 new genera, 24 new species.
53. FRITSCH, A., & VÁVRA, V. Vorläufiger Bericht über die Fauna des Unter- Pocernitzer und Gatterschlagers Teiches. Zool. Anz. xv (1892), pp. 26-30.  
29 *Protozoa* obtained; 5 undetermined, none new.
54. GEINITZ, E. XIII. Beitrag zur Geologie Mecklenburgs. Weitere Aufschlüsse der Flötzformationen. Arch. Ver. Mecklenb. xlv, pp. 59-97, 3 pls.  
*Foraminifera*, pp. 68 & 69.
55. GEINITZ, H. B. Die Versteinerungen des Herzogthums Sachsen-Altenburg. MT. Osterlande (n.f.) v, pp. 161-199.  
*Rhizopoda*, pp. 179 & 180.
56. GOËS, A. On a Peculiar Type of Arenaceous Foraminifer from the American Tropical Pacific: *Neusina agassizi*. Bull. Mus. C. Z. xxiii, No. 5, pp. 195-197, 1 pl. Abstract in J. R. Micr. Soc. 1893, No. 2, p. 199.
57. GOROSCHANKIN, J. Beiträge zur Kenntniss der Morphologie und Systematik der Chlamydomonaden. Bull. Mosc. 1891, pp. 101-142, 3 pls. Abstract in J. R. Micr. Soc. 1892, p. 54.  
3 new species.
58. \*GRASSI, B., & FELETTI, R. Contribuzione alla studio dei parassiti malarici. 5 l. e. a. (1892), 4to, 80 pp., 1 pl. [From Zool. Anz. 1892.]
59. GRASSI, B. Conclusioni d'una Memoria sulla società dei Termiti. Atti Acc. Pontif. Lincei (5) i, (1892), pp. 33-36. Abstract in J. R. Micr. Soc. 1892, p. 472.  
Parasitic *Protozoa* in Termites. 3 new genera, 5 new species.
60. GREEFF, R. Terrestrial *Amæbæ*. J. R. Micr. Soc. 1892, p. 51. Abstract of paper in MT. Ges. Marb., Feb. 1891. [See Zool. Rec. 1891.]
61. —. Organization of *Amæbæ*. J. R. Micr. Soc. 1892, p. 51. Abstract of paper in Biol. Centralbl. xi, p. 599. [See Zool. Rec. 1891.]

62. [GREEFF, R.] *Trichosphærium sieboldii*, Schn. Zool. Anz. xv (1892), pp. 60-64. Abstract in J. R. Micr. Soc. 1892, pp. 220 & 221.
63. —. Ueber Amœben. III. Mittheilung. SB. Ges. Marb. 1892, pp. 22-43, and Biol. Centralbl. xii, pp. 373-384. Abstract in J. R. Micr. Soc. 1892, p. 625.
64. GREGORY, J. W. The Tudor Specimen of *Eozoon*. Nature, xlv, pp. 486 & 487.
65. GRIFFITHS, A. B. The Physiology of the *Invertebrata*. London (L. Reeve & Co.): 1892, 8vo, 477 + xvi pp., 81 woodcuts.  
*Protozoa*, pp. 23-30, 79, 119, 120, 183, 184, 208, 246-248, 295, 296, 346-348, 375-377, & 404-408.
66. GRUBER, A. Eine Mittheilung über Kernvermehrung und Schwärmerbildung bei Süsswasser-Rhizopoden. Ber. Ges. Freiburg, vi, pp. 114-118, 1 pl.
67. —. Einzellige Zwerge. In Festschrift zum 70. Geburtstage R. Leuckart's, pp. 74-76, 2 woodcuts.  
Abnormally small specimens of *Stentor cœruleus* and *S. polymorphus*.
68. GUERNE, J. DE, & RICHARD, J. Sur la faune des eaux douces de l'Islande. C.R. pp. 310-313. Abstract in Ann. N. H. (6) x, p. 340.  
1 Protozoon: *Ceratium longicorne*, Perty.
69. HANITSCH, R. Foraminifer or Sponge? Nature, xlvii, No. 1216, p. 365.
70. —. Foraminifer or Sponge? *Op. cit.* No. 1219, p. 439.  
On *Neusina agassizi*, Goës, a supposed Foraminifer.
71. \*HEHIR, P. [Hæmatozoon of Malaria.] J. R. Micr. Soc. 1892, p. 380. Abstract of "Separate copy, sent by author, no date, no place of publication, 4to, 27 & ii pp., 9 pls."
72. \*—. [New Cholera Microbe.] Indian Medical Gazette (Special Supplement) April, 1892, 7 pp., 11 pls. Abstract in J. R. Micr. Soc. 1892, p. 495.
73. HENNEGUY, F., & THÉLOHAN, P. Sur un Sporozoaire parasite des muscles des Crustacés décapodes. C.R. cxiv (1892), pp. 1552-1555. Abstract in Ann. N. H. (6) x, pp. 342-344, and in J. R. Micr. Soc. 1892, p. 626.
74. HERDMAN, W. A. Notes on the Collections made during the Cruise of S.Y. "Argo," up the West Coast of Norway, in July, 1891. P. Liverp. Biol. Soc. vi, pp. 70-93, 2 pls.  
*Foraminifera*, pp. 86-88.
75. HINDE, G. J. Note on a Radiolarian Rock from Fanny Bay, Port Darwin, Australia. Q. J. Geol. Soc. xlix, pp. 221-226, 1 pl.  
11 new species.

76. HORNE, J. On the Contact Metamorphism of the Radiolarian Chert in the Lower Silurian Rocks along the margin of the Loch Doon Granite. Rep. Brit. Ass. 1892, p. 712.
77. HOSIUS, A. Beiträge zur Kenntniss der Foraminiferen-Fauna des Miocäns. Verh. Ver. Rheinl. xlix, pt. i, pp. 148-197, 2 pls.  
Many undetermined, none described as new.
78. IMHOF, O. E. Notizie sulla Fauna pelagica della laguna di Venezia. Neptunia, i, No. 1. 1. Gennaio : 1891, pp. 1-4.  
Several *Protozoa*. 1 new species.
79. JAKOWLEW, W. Opisanie nyeskol'kikh vidov myelov'ikh Foraminifer. Description de quelques espèces des Foraminifères crétacés. Trav. Soc. Univ. Kharkow, xxiv, pp. 341-361, 3 pls.  
1 new genus, 2 new species.
80. JENSEN, P. Ueber den Geotropismus niederer Organismen. Arch. ges. Phys. liii, hft. 9 & 10, pp. 428-480, 13 woodcuts.
81. —. Methode der Beobachtung und Vivisection von Infusorien in Gelatinelösung. Biol. Centralbl. xii, Nos. 18 & 19, pp. 556-560.
82. KLEBS, G. Flagellatenstudien. Theil I. Z. wiss. Zool. lv, hft. 2, pp. 265-351, 4 pls. Theil II, t. c. hft. 3, pp. 353-445, 2 pls. Abstract in J. R. Micr. Soc. 1893, No. 2, pp. 196 & 197.  
8 new families, 9 new genera, 42 new species.
83. KOROTNEFF, A. *Myxosporidium bryozoides*. Z. wiss. Zool. liii, pp. 591-596, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 379.
84. KRUSE, W. Der gegenwärtige Stand unserer Kenntnisse von den parasitären Protozoen. Hyg. Rundschau, 1892, pp. 357-380 & 453-485.
85. LAMEERE, A. Prologomènes de Zoogenie. Bull. Sci. Fr. Belg. xxiii (1891), pp. 399-411.  
Systematic position of *Protozoa*, &c.
86. LAUTERBORN, R. Ueber Periodizität im Auftreten und in der Fortpflanzung einiger pelagischen Organismen des Rheines und seiner Altwasser. Zeitschrift für Fischerei, &c., i (1893), No. 2, pp. 81-95, 4 woodcuts, and in Verh. Ver. Heidelb. (n.f.), v, hft. 1, pp. 1-15.
87. LAVERAN, A. Du paludisme et son hématozoaire. Paris (G. Masson) : 1891, 8vo, 300 pp. Abstract in CB. Bakt. Parasit. xi (1892), pp. 510-512, and in J. R. Micr. Soc. 1892, p. 626.
88. LÉGER, L. Recherches sur les Grégarines. Rev. Sci. xlix, pp. 660 & 661.
89. LEVANDER, K. M. Notiz über die Tafelung der Schalenmembran des *Glenodinium cinctum*, Ehb. Zool. Anz. xv (1892), pp. 405-408, 4 woodcuts. Abstract in J. R. Micr. Soc. 1893, No. 2, p. 197.

90. [LEVANDER, K. M.] Verzeichniss der während des Sommers 1891 bei Rostock beobachteten Protozoen. Arch. Ver. Mecklenb. xlv, pp. 113-118.
- 103 (old) species. Some new ones will be described in a future paper.
91. LINTON, E. Notice of the Occurrence of Protozoon Parasites (Psorosperms) on Cyprinoid Fishes in Ohio. Bull. U. S. Fish. Comm. ix, pp. 359-361, 1 pl.
92. LONGHI, P. Protisti delle acque dolci di Genova e dintorni. Atti Soc. Ligust. iii, pp. 137-161.
93. LORD, J. E. Rossendale Rhizopods. No. 8, Sci. Goss., Febr. 1892, pp. 28 & 29, 2 woodcuts. No. 9, Sci. Goss., June, 1892, pp. 129 & 130.
94. MALAGOLI, M. Foraminiferi miocenici di Paullo nell' Appennino Modenese. Atti Soc. Mod. (3) x, pp. 79-92.
- 14 species ; none new.
95. —. Foraminiferi pliocenici di Castellarquato e Lugagnano nella Provincia di Piacenza. Boll. Soc. geol. Ital. xi, fasc. 1, pp. 81-103.
96. MAREY, E. J. Le mouvement des êtres microscopiques analysé par la Chronophotographie. C.R. cxiv, pp. 989 & 990. Abstract in Rev. Sci. xlix, pp. 633 & 634.
97. MARIANI, E. La fauna a foraminiferi delle marne che affiorano da alcuni tufi vulcanici di Viterbo. Boll. Soc. geol. Ital. x (1891), pp. 169-178, 1 pl.
98. MATTHEW, G. F. List of the Fossils found in the Cambrian Rocks in and near St. John. Bull. Nat. Hist. Soc. Brunswick, x, pp. xi-xxiii.
- Protozoa*, p. xv.
99. METSCHNIKOFF, E. Note au sujet du mémoire de M. Soudakewitch. Annales Inst. Pasteur, 1892, p. 158. Abstracts in CB. Bakt. Parasit. p. 39, and in J. R. Micr. Soc. 1892, pp. 627 & 628.
- On parasites in Cancer.
100. MINCHIN, E. A. Observations on the Gregarines of Holothurians. Q. J. Micr. Sci. xxxiv, pt. 3, pp. 279-310, 2 pls.
- 1 new species.
101. MINGAZZINI, P. Classification of *Sporozoa*. J. R. Micr. Soc. 1892, p. 54. Abstract from paper in Atti Acc. Rom. (4) vii, pp. 136-141. [See Zool. Rec. 1891.]
102. —. New Monocystid Gregarines. J. R. Micr. Soc. 1892, p. 53. Abstract from paper in Atti Acc. Rom. (4) vii, pp. 229-235. [See Zool. Rec. 1891.]
103. —. \* Ciclo evolutivo della *Benedenia octopiana*. Atti Acc. Rom. (5) i, pp. 218-222.

104. [MINGAZZINI, P.] Classificazione dei Coccidi e delle Gregarine. Atti Acc. Pontif. Lincei (5) i, pp. 68-75. Abstract in J. R. Micr. Soc. 1892, p. 380.
105. —. Contributo alla conoscenza dei Coccidi. Atti Acc. Pontif. Lincei (5) i, pp. 175-181. Abstract in J. R. Micr. Soc. 1892, p. 495.
106. —. Nuove specie di Sporozoi. Atti Acc. Pontif. Lincei (5) i, pp. 396-402, 4 figg. Abstract in J. R. Micr. Soc. 1892, p. 806.  
2 new genera ; 2 new species.
107. MITTER, J. Beitrag zur Kenntniss des *Balantidium coli* im menschlichen Darmkanale. Inaugural Dissertation. Kiel : 1891. Abstracts in CB. Bakt. Parasit. xii (1892), p. 111, and in J. R. Micr. Soc. 1892, p. 625.
108. MRÁZEK, A. O tak zvané *Monocystis tenax*, Stein. SB. Böhm. Ges. 1892, pp. 67-76, 2 woodcuts.  
No résumé in German. The author endeavours to prove that the species belongs to the *Flagellata*.
109. MURRAY, J., & IRVINE, R. On Silica and Siliceous Remains of Organisms in Modern Seas. P. R. Soc. Edinb. xviii, pp. 229-250.
110. NOLL, F. C. Die Ernährungsweise des *Trichosphaerium sieboldii*, Schn. Zool. Anz. xv (1892), pp. 209 & 210. Abstract in J. R. Micr. Soc. 1892, p. 805.
111. NORMAN, A. M. Museum Normanianum ; or, a Catalogue of the *Invertebrata* of Europe, and the Arctic and North Atlantic Oceans. VII & VIII : *Spongozoa* and *Rhizopoda*. Durham : 1892, 8vo, 21 pp. *Rhizopoda*, pp. 14-21.
112. OSBORN, H. L. The *Protozoa*—a Phylum of the Animal Kingdom considered biologically. Am. Micr. J. xiii, No. 10, pp. 233-243, 1 pl.
113. PEACH, B. N. On a widespread Radiolarian Chert of Arenig Age from the Southern Uplands of Scotland. Rep. Brit. Ass. 1892, pp. 711 & 712.
114. PEARCEY, F. G. Foraminifer or Sponge ? Nature, xlvii, No. 1217, p. 390.  
On *Neusina agassizi*, Goës, a supposed Foraminifer.
115. PERNER, J. Předběžný Kritický Seznam Foraminifer z Březen-ských Vrstev. *Résumé*, Kritisches Verzeichniss der Foraminiferen aus den Priesener Schichten der böhmischen Kreideformation. SB. Böhm. Ges. 1892, pp. 34-53.  
1 new species.
116. —. Ueber die Foraminiferen des böhmischen Cenomans. (*Résumé* des böhmischen Textes.) Palæontographica Bohemiæ, i, pp. 49-65, 10 pls.  
28 new species.

117. PFEIFFER, R. Beiträge zur Protozoen-Forschung. 1. Heft. Die Coccidien-Krankheit der Kaninchen. Berlin (A. Hirschwald): 1892, 8vo, 24 pp., 12 pls.
118. —. Vergleichende Untersuchungen über Schwärmsporen und Dauersporen bei den Coccidieninfektionen und bei Intermittens. Fortschritte d. Medicin, 1890, pp. 939-951. Abstracts in CB. Bakt. Parasit. xii (1892), pp. 109 & 110, and in J. R. Micr. Soc. 1892, pp. 806 & 807.
119. —. Ueber einige neue Formen von Miescherschen Schläuchen mit Mikro-, Myxo-, und Sarkosporidieninhalt. Virchow's Archiv. cxxii, pp. 552-573, 1 pl. Abstracts in CB. Bakt. Parasit. xii (1892), pp. 110 & 111, and in J. R. Micr. Soc. 1892, p. 807.
120. —. Die Protozoen als Krankheitserreger sowie der Zellen- und Zellkernparasitismus derselben bei nicht bakteriellen Infektionskrankheiten des Menschen. 2 Aufl. Jena (G. Fischer): 1891, Lex. 8vo, vi & 216 pp., 91 woodcuts. Abstracts in CB. Bakt. Parasit. xii (1892), pp. 168-171, and in J. R. Micr. Soc. 1892, p. 808.
121. PODWYSZOZKI, W., & SAWTSCHENKO, J. Ueber Parasitismus bei Carcinomen nebst Beschreibung einiger in den Carcinomgeschwülsten schmarotzenden Sporozoen. CB. Bakt. Parasit. xii (1892), pp. 493-500, 532-538, & 559-563, 2 pls. Abstract in J. R. Micr. Soc. 1892, p. 629.
122. POLLARD, E. C. A New Sporozoon in *Amphioxus*. Q. J. Micr. Sci. xxxiv, pt. 3, pp. 311-316, 1 pl.  
Species not named.
123. POUCHET, G. Cinquième contribution à l'histoire des Péridiniens: *Peridinium pseudonoctiluca*, Pouchet. J. de l'Anat. Phys. 1892, pp. 143-150, 1 pl.
124. \*RAILLIET, A. [On *Myoxsporidia*.] Bull. Soc. Aquic. de France, xv (1890), pp. 192-198.
125. RAILLIET, A., & LUCET, A. Note sur quelques espèces de Coccidies encore peu étudiées. Bull. Soc. Z. Fr. xvi, pp. 246-250.  
2 new species.
126. RHUMBLER, L. Eisenkiesablagerungen im verwesenden Weichkörper von Foraminiferen, die sogenannten Keimkugeln Max Schultze's u. A. Vorläufige Mittheilung. Nachr. Ges. Götting. 1892, No. 12, pp. 419-428.
127. ROBERTSON, D. List of *Foraminifera* dredged in Portree Bay, Island of Skye. P. N. H. Soc. Glasg. (n.s.) iii, pt. 3 (1889-92), pp. 239-242.  
None new.

128. ROSENBERG, —. Ein Befund von Psorospermien (Sarcosporidien) im Herzmuskel des Menschen. Zeitschr. f. Hygiene, xi, No. 3. Abstracts in CB. Bakt. Parasit. xi (1892), p. 739, and in J. R. Micr. Soc. 1892, pp. 628 & 629.  
1 new species.
129. RÜST, J. Beiträge zur Kenntniss der fossilen Radiolarien aus Gesteinen der Trias und der paläozoischen Schichten. Paläontogr. xxxviii, pp. 107–200, 25 pls.  
3 new genera; 244 new species.
130. RUFFER, M. A., & WALKER, J. H. On some Parasitic *Protozoa* found in Cancerous Tumours. J. Path. Bact. i, No. 2 (Oct. 1892), pp. 198–215, 3 pls.
131. SAWTSCHENKO, G. Weitere Untersuchungen über schmarotzende Sporozoen in den Krebsgeschwülsten. CB. Bakt. Parasit. xii (1892), pp. 17–28, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 628.
132. SCHACKO, G. Foraminiferen und Ostracoden aus der Kreide von Moltzow. Arch. Ver. Mecklenb. xlv (1891), pp. 155–160, 1 pl.  
4 new species of *Foraminifera*.
133. SCHEWIAKOFF, W. Ueber die geographische Verbreitung der Süsswasser-Protozoen. Verh. Ver. Heidelb. (n.f.) iv, hft. 5, pp. 544–567.  
17 new genera; 36 new species.
134. SCHILLING, A. J. Die Süsswasser-Peridineen. Inaugural-Dissertation. Marburg (R. Friedrich): 1891, 8vo, 81 pp., 3 pls.  
8 new species. [The Recorder for last year, although he mentions this paper, was unable to see it, and to enumerate the new species.]
135. —. Untersuchungen über die thierische Lebensweise einiger Peridineen. Ber. Deutsch. Bot. Ges. ix (1891), pp. 199–208, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 52.  
1 new species.
136. SCHLUMBERGER, C. Note sur le *Ramulina grimaldii*. Mém. Soc. Zool. iv, pp. 509–511, 1 pl.  
1 new species.
137. —. Révision des Biloculines des grands fonds. Mém. Soc. Zool. iv, pp. 542–579, 4 pls., 46 woodcuts.  
8 new species.
138. —. Note préliminaire sur les Foraminifères dragués par S. A. le Prince Albert de Monaco. Mém. Soc. Zool. v, pp. 207–212, 1 pl., 5 woodcuts.  
2 new species.
139. SCHUBERG, A. Bemerkungen zu den 'Untersuchungen' des Herrn Dr. Angelo Fiorentini über die Protozoen des Wiederkäuermagens. CB. Bakt. Parasit. xi, pp. 280–283.

140. [SCHUBERG, A.] Ueber einige Organisationsverhältnisse der Infusorien des Wiederkäuermagens. SB. Ges. Würzb. 1891, pp. 123-137. Abstract in J. R. Micr. Soc. 1892, p. 494.
141. —. Ueber Coccidien des Mäusedarms. SB. Ges. Würzb. 1892, pp. 65-72.
142. SCHÜTT, F. Ueber Organisationsverhältnisse des Plasmaleibes der Peridineen. SB. Ak. Berlin, 1892, pp. 377-384, 1 pl., and in MT. Ak. Berlin, 1892, pp. 165-171, 1 pl. Abstract in J. R. Micr. Soc. 1892, p. 805.
143. SEVERI, A. Gregarinosi polmonale in infante nato-morto. Boll. R. Accad. Medic. Genova, vii (1892), fasc. 2, 8 pp. Abstracts in La Riforma Medica, 1892, No. 80, and in CB. Bakt. Parasit. xii (1892), p. 262, and in J. R. Micr. Soc. 1892, p. 806.
144. SIMMONS, W. J. Some Stalked *Actinophyrans*. Sci. Goss. 1892, pp. 124-127, 9 figg. Abstract in J. R. Micr. Soc. 1892, p. 494.
145. SMILEY, C. W. A beautiful *Rhizopod*. Am. Micr. J. xiii, pp. 51-54, 8 woodcuts.
146. SOLGER, B. Parasitic *Protozoa*. J. R. Micr. Soc. 1892, p. 53. Abstract of paper in MT. Vorpomm. xxii (1890), pp. 99-102. [See Zool Rec. 1891.]  
1 new genus ; 1 new species.
147. SOLLAS, W. J. Supposed Radiolarian Remains from the Slate of Howth. [Title only.] Rep. Brit. Ass. 1892, p. 723.
148. —. Supposed Radiolarian Remains from the Culdaff Limestone. [Title only.] *Ibid*.
149. SOUDAKEWITSCH, —. Recherches sur le parasitisme intracellulaire et intranucléaire chez l'homme. Ann. Inst. Pasteur, 1892, p. 145, 3 pls. Abstracts in CB. Bakt. Parasit. xii (1892), p. 39, and in J. R. Micr. Soc. 1892, p. 627.
150. TELLINI, A. Istruzioni per la raccolta, preparazione e conservazione dei Foraminiferi viventi e fossili. Riv. Ital. Sci. Nat. xii (1892), No. 1, pp. 4-7.
151. THÉLOHAN, P. Note sur la *Glugea microspora*. C.R. Soc. Biol. (9) iv (1892), 3 pp.
152. —. Sur quelques nouvelles Coccidies parasites des poissons. J. de l'Anat. Phys. 1892, pp. 152-171, 1 pl. Abstracts in C.R. cxiv, pp. 136-138, C.R. Soc. Biol. (9) iv (1892), Am. Nat. xxvi, p. 958, Ann. N. H. (6) x, pp. 115-117, and J. R. Micr. Soc. 1892, p. 380.  
2 new species.
153. —. Myxosporidies de la vésicule biliaire des Poissons. Espèces nouvelles. C.R. cxv, No. 22, pp. 961-964, and No. 24, pp. 1091-1094. Abstract in J. R. Micr. Soc. 1893, No. 2, pp. 198 & 199.  
1 new genus ; 5 new species.

154. [THÉLOHAN, P.] Sur les Myxosporidies. C.R. Soc. Philom. Paris, xx, Août, 1892, pp. 2 & 3.
155. THOMAS, B. Notes on *Amæba* and *Infusoria*. I. The *Amæba*. Sci. Goss. March, 1892, pp. 52 & 53, 1 woodcut. II. Flagellate *Infusoria*. *Op. cit.* April, 1892, pp. 81 & 82, 1 woodcut, May, 1892, pp. 99-103, 4 woodcuts, June, 1892, pp. 135-138, 5 woodcuts, July, 1892, pp. 147-149, 3 woodcuts, August, 1892, pp. 172-176, 5 woodcuts, October 1892, pp. 231-233, 4 woodcuts.
156. TOPSENT, E. Sur un nouveau Rhizopode marin (*Pontomyxa flava*, n. g. & sp.). C.R. cxiv, pp. 774 & 775. Abstracts in Rev. Sci. xlix, p. 475, and in J. R. Micr. Soc. 1892, pp. 379 & 380.
157. VEJDOVSKY, F. Sur une *Thuricola* d'eau douce. Congrès Internat. Zool. Sess. ii, No. 1, pp. 52-57. Abstract in J. R. Micr. Soc. 1893, No. 2, p. 190.  
1 new species.
158. —. Sur la *Monodontophyra*, nouvelle espèce d'Opalinide. Congrès Internat. Zool. Sess. ii, No. 1, pp. 24-31.  
1 new species.
159. VERBEEK, R. D. M. Vorloopig bericht over nummulieten, orbitoiden en alveolinen van Java, en over den ouderdom der gesteenten waarin zij optreden. Nat. Tijdschr. Nederl. Ind. li, pp. 101-138, 1 pl.  
1 new species.
160. VERWORN, M. Die physiologische Bedeutung des Zellkerns. Arch. ges. Phys. li, pp. 1-118, pls. i-vi.
161. VINE, G. R. Notes on *Polyzoa* found at Cleethorpes. In 1875, 1879, and 1882. Naturalist, 1892, pp. 5-11.  
1 *Foraminifer* mentioned (*Planorbulina lobatula*).
162. WELTNER, W. Ueber Myxosporidiensporen in den Eiern von *Esox lucius*. SB. nat. Fr. 1892, No. 4, pp. 28-36, 16 woodcuts.
163. ZACHARIAS, O. Vorläufiger Bericht über die Thätigkeit der Biologischen Station zu Plön. Zool. Anz. xv (1892), pp. 457-460.  
2 new species, several undetermined.
164. —. Ueber eine *Ichthyophthirius*-Art aus den Aquarien der Biologischen Station zu Plön. In Festschrift zum 70. Geburtstage R. Leuckart's, pp. 289-292, 1 pl.  
1 new species.
165. ZOPF, W. Beiträge zur Physiologie und Morphologie niederer Organismen. 1. Heft. Leipzig (A. Felix): 1892, 8vo, pp. iv & 97, 3 pls.  
1892. [VOL. XXIX.]

## II.—ANATOMY, BIOLOGY.

## 1. GENERAL MORPHOLOGY.

BÜTSCHLI (17) gives an account of the various opinions regarding the structure of protoplasm, and states his own views on the subject.

DREYER (39) discusses the tetraaxial type of the skeleton in the *Polycystina* (also in *Sponges* and in *Echinodermata*), and offers mechanical explanations.

ENTZ (40) gives a detailed account of the elastic and contractile elements of the *Vorticellineæ*, especially of the large forms, *Epistylis umbellaria*, L., and *Zoothamnium arbuscula*, Eh. Covering the ectoplasm there is a delicate membrane (pellicula) which has a double function : (1) it serves as attachment for the contractile elements ; and (2), being elastic, it acts as antagonist to the same. The contractile elements consist of two systems, an outer and an inner one, each again being made up of two layers. Thus there are altogether four layers of myonemes : an outer circular, an outer longitudinal, an inner circular, and an inner longitudinal. These layers are now described in their most minute details. The paper is illustrated by a series of very high-power drawings.

FRENZEL (47-52) gives elaborate papers on Argentine Protozoa, especially on *Rhizopoda*, *Helioamæbæ*, and *Sporozoa*.

GREEFF (63) describes a thin, very flexible, resistant, and perhaps chitinous membrane, which encloses the body of *Amæba fluida*, and is interrupted by an opening through which the pseudopodial appendix ("Zottenanhang") projects.

GRUBER (67) describes abnormally small specimens of *Stentor cæruleus* and *S. polymorphus*. The former had only a single nuclear joint.

KLEBS (82) describes the peripheral portion of the *Flagellata*. The "periblast" is the outermost plasmic layer, and is always present. Outside this there is a secondary envelope ("Hülle"), which may be absent.

LEVANDER (89) describes the cuticular shell of *Glenodinium cinctum*, Ehrenb., as being composed of a number of polygonal plates, as in *Peridinium (tabulatum)*.

RÜST (129) makes important contributions to our knowledge of fossil *Radiolaria*, with exhaustive illustrations.

SCHLUMBERGER (137) has studied the Deep Sea *Biloculines*, chiefly by means of median sections, and describes a kind of dimorphism (using this term in a sense slightly different from its customary meaning). In each species may be distinguished two forms, A and B. In the form B the first chamber (microsphère) is extremely small, and is succeeded by numerous small chambers. The form A begins at once with a large chamber (megaspère).

SCHÜTT (142) has studied the structure of *Peridiniidæ*. He distinguishes two concentric layers of plasma : an outer layer (which consists again of two layers, one hyaline and the other granular), and an inner mass, which

is not granular, and contains nucleus, sap-chambers, and various vacuoles.

SCHILLING (134) has a paper on the structure of the freshwater *Peridinidæ*.

## 2. REPRODUCTION.

GREEFF (63) asserts that he has never noticed reproduction by means of binary fission, either in *Amæba fluida* or in any other Amœbæ. He describes phenomena which remind one of the formation of spores.

GRUBER (66) describes the formation of spores in *Arcella vulgaris* and *Lecythium hyalinum*.

KLEBS (82) says that in studying the *Flagellata* (from which he excludes the *Volvocina*), he never has seen a sexual process of reproduction. All reproduce asexually and by longitudinal fission (except *Oxyrrhis marina*, which divides transversely). Still, he thinks it possible that forms along the border line, allied to *Ciliata* or *Volvocina*, may yet be discovered which reproduce sexually.

SCHUBERG (140) has studied the reproduction of *Dasytricha ruminantium*, and of other *Ciliata*, living in the rumen and reticulum of *Ruminantia*.

SCHUBERG (141) describes the formation of spores of *Coccidia* in the stomach of a mouse.

SCHILLING (134) discusses the reproduction of the *Peridinidæ*. The rule is vegetative reproduction, and doubtful are the accounts of copulation and conjugation.

## 3. PHYSIOLOGY.

BALBIANI (5) has been experimenting on the artificial division of *Ciliata*. In merozoites which contain the whole, or part, of a nucleus, the regeneration is rapid and complete.

BRANDT (15) describes the hydrostatic apparatus of some *Protozoa*.

CERTES (19) describes his experiments on the vitality of germs of microscopic organisms. Cultivation of freshwater sediments yields by far more life (*Protozoa* and a few *Metazoa*) than that of marine sediments.

DANGEARD (30) discusses the animal-like nutrition of some *Peridinidæ*.

FRENZEL (51) gives an account of the chemistry of *Gregarinida*. He distinguishes the following substances: Protoëlastin, Alveolin, Paralveolin, neutral fats, Albuminoids, Protocollagen, Paraglycogen, Pyxinin, Antienzym, Morulin, Paramorulin, Nuclein, Nuclear Sap, Cell Sap.

GREEFF (63) gives an account of the movement and nutrition of *Amæba*.

GRIFFITHS (65) treats of *Protozoa* in the following pages: 23-30, 79, 119-123, 183, 184, 208, 246-248, 295, 296, 346-348, 375-377, & 404-408.

JENSEN (80) speaks of the Geotropism of *Protozoa*.

LAUTERBORN (86) gives some interesting sketches on the periodicity

in the appearance and reproduction of pelagic organisms in the Rhine and its "Altwasser." Besides *Algae*, *Rotatoria*, *Crustacea*, *Mollusca*, he treats of *Dinobryon*, *Ceratium hirundinella*, and other *Protozoa*.

NOLL (110) gives an account of his observations of *Trichosphaerium sieboldii* feeding on Diatoms along the glass walls of his aquarium, and reproducing rapidly.

RHUMBLER (126) shows that the so-called "Budspores" ("Keimkugeln") of *Foraminifera* are foreign bodies. They may be (1) either Diatoms (*Cocconeis* ?), or (2) granules of excretory matter (?), or (3) products of decomposition of the animal. He has studied especially this third class of bodies. They are of a black colour, show sometimes a distinctly crystalline structure, and consist of iron-pyrite. This agrees with the statements of geologists (e.g., Justus Roth) that a great part of the iron-pyrites are of organic origin.

SCHILLING (135) discusses the animal-like nutrition of some *Peridinidae*.

VERWORN (160) treats of the physiological significance of the nucleus, especially of that of *Protozoa*.

*Protozoa* and Human Pathology : *Sporozoa* (or other *Protozoa* ?) can be demonstrated in numerous cases of Cancer. See papers by FOÀ, METSCHNIKOFF, PFEIFFER (120), PODWYSSOZKI, RUFFER & WALKER, SAWTSCHENKO, and SOUDAKEWITSCH. For Malaria and *Hæmatozoa*, see DANILEWSKY, DOCK, GRASSI & FELETTI, HEHIR, and LAVERAN. For various other diseases, in their connections with *Protozoa*, see papers by KRUSE, MITTER, PFEIFFER, ROSENBERG, and SEVERI.

### III.—DISTRIBUTION.

#### A. FAUNISTIC.

Argentina.—*Rhizopoda*, *Heliamæba*, *Gregarinida* ; FRENZEL.

Atlantic.—BORGERT treats of the geographical distribution of the *Phæodaria*, collected during the Plankton-Expedition. Richest were the Irminger Sea and the Labrador current ; exceedingly poor the Sargossa Sea, probably on account of its very high temperature. Still poorer were the Florida, and the East- and West-Greenland current. *Foraminifera* ; SCHLUMBERGER.

Iceland.—Freshwater *Protozoa* ; GUERNE & RICHARD.

Great Britain.—I. of Skye : *Foraminifera* ; ROBERTSON.—Southport : *Foraminifera* ; CHASTER.—Cleethorpes : 1 Foraminifer ; VINE.—Plymouth : *Dinoflagellata* ; BLES.—Plymouth : *Sporozoa* ; MINCHIN.

Norway.—West Coast : *Foraminifera* ; HERDMAN.—Bergen : *Foraminifera* ; APPELLÖFF.

France.—Banyuls : *Rhizopoda* ; TOPSENT.

Germany.—Holstein : Freshwater *Protozoa* ; ZACHARIAS.—LEVANDER (90) gives a list of freshwater *Protozoa* collected near Rostock, in Mecklenburg, viz., 12 *Rhizopoda*, 4 *Heliozoa*, 45 *Flagellata*, 4 *Dinoflagellata*, 38 *Ciliata*.

- Belgium.—Ostend : Marine *Amœbæ*; GREEFF.  
 Bohemia.—*Protozoa* ; FRITSCH & VÁVRA.  
 Switzerland.—Basle : *Flagellata* ; KLEBS : *Dinoflagellata* ; SCHILLING.  
 —Lake of Geneva : *Diffugia* and *Protozoa* generally ; BLANC.  
 Italy.—Genoa : Freshwater *Protozoa* ; LONGHI.—*Sporozoa*, MINGAZZINI.  
 —Lagoons of Venice : *Protozoa*, IMHOF.  
 India.—Calcutta : *Clathrulina elegans* and *Hedriocystis pellucida* ; SIMMONS : *C. elegans* was first found in St. Petersburg, afterwards in Central and Western Europe, and in North America.  
 Malay Archipelago.—Freshwater *Protozoa* ; SCHEWIAKOFF.  
 Japan.—Sand *Foraminifera* ; DÖDERLEIN.  
 Eastern Archipelago.—Deep-sea deposits ; BASSETT-SMITH.  
 Australia.—Freshwater *Protozoa* ; SCHEWIAKOFF.  
 New Zealand.—Freshwater *Protozoa* ; SCHEWIAKOFF.  
 Sandwich Islands.—Freshwater *Protozoa* ; SCHEWIAKOFF.

## B. GEOLOGICAL.

RÜST examined all rocks from the Trias and Palæozoic strata, which were accessible to him, for *Radiolaria*. The Limestones of Palæozoic strata and Trias contained only exceedingly few *Radiolaria*, and these in a condition not suitable for identification. Exceedingly rich were numerous siliceous limestones, siliceous schists, hornstones, jasper, adinole, and wetzschiefer. The skeletons, too, were here in splendid condition.

Laurentian or Precambrian.—Bretagne : *Radiolaria* allied to the *Monospherideæ*. The oldest organic remains of France and probably of the world. BARROIS.

Cambrian.—St. John, New Brunswick : Species of *Monadites* and *Radiolarites* ; MATTHEW.

Ordovician (?).—Mullion I. (off Lizard Peninsula, Cornwall) : Radiolarian Chert ; FOX & TEALL.

Silurian.—Cabrières, Languedoc, France : *Radiolaria*, RÜST.—Scotland : *Radiolaria*, PEACH.

Devonian.—Schæbenholz, Hartz Mountains, and South Ural : *Radiolaria*, RÜST.

Carboniferous.—Hartz Mountains, Bükk Mountains in Hungary, and Sicily : *Radiolaria*, RÜST.

Permian.—Nowgorod : *Radiolaria*, RÜST.

Trias.—Astura, Felső Eörs in Bakony and Röthelstein, near Aussee, in Tyrol : *Radiolaria*, RÜST.—Saxe-Altenburg : *Rhizopoda*, H. B. GEINITZ.

Cretaceous.—Gault of Folkestone : *Foraminifera*, CHAPMAN.—Moltzow in Mecklenburg : *Foraminifera*, SCHACKO. — Priesen, Kamajk, near Časlau, and Gangberg, near Kuttendorf, Bohemia : *Foraminifera*, PERNER.—Russia : *Foraminifera*, JAKOWLEW.

Eocene.—Java : *Foraminifera*, VERBEEK.

Oligocene (Upper).—Maliss, in Mecklenburg : *Foraminifera*, E. GEINITZ.

Miocene.—Java, Sumatra, and Nias : *Foraminifera*, VERBEEK.—Kuning Mühle, near Dingden, Germany : *Foraminifera*, HOSIUS.—Apennines, near Modena : *Foraminifera*, MALAGOLI.—(Miocene ?) Radiolarian Rock, from Fanny Bay, Port Darwin, Australia ; HINDE.

Pliocene.—Near River Arno, Italy : *Foraminifera* and *Radiolaria*, CORTI.—Castellarquato and Lugagno, near Piacenza : *Foraminifera*, MALAGOLI.—Italy : *Foraminifera*, FORROSINI.—Villarvernia, Italy : *Foraminifera*, DERVIEUX.—Volcanic tuf of Viterbo, Italy : *Foraminifera*, MARIANI.

#### IV.—SYSTEMATIC.

##### A.—GYMNOMYXA.

###### Class 3.—LOBOSA.

*Amœba fluida*, Gruber, pp. 24–41, *crystalligera*, pp. 41–43, Ostende, redescribed by GREEFF, SB. Ges. Marb. 1892.

*A. hercules*, p. 24, pl. iii, figg. 10, 11, & 17, *pellucida*, p. 29, pl. i, figg. 3 & 6, Argentina, FRENZEL, Bibl. Zool. xii, n. spp.

*Diffugia lemani*, Lake Lemman ; BLANC (12), p. 5, pl. ii, figg. 13–15, n. sp.

*Guttulidium*, n. g. with *G. tinctum*, & sp., Argentina ; FRENZEL, Bibl. Zool. xii, p. 1, pl. iii, figg. 7 & 8.

*Limulina*, n. g. with *L. unica*, & sp., Argentina ; FRENZEL, Bibl. Zool. xii, p. 41, pl. iii, fig. 9.

*Mastigamœba schulzei*, Argentina ; FRENZEL, Bibl. Zool. xii, p. 49, pl. v, figg. 1–14.

*Mastigella*, n. g. with *M. polymastix*, & sp., Argentina ; FRENZEL, Bibl. Zool. xii, p. 38, pl. ii, fig. 3.

*Mastigina*, n. g. with *M. chlamys*, p. 42, pl. iv, figg. 3–7, *paramylon*, p. 47, pl. ii, fig. 7, n. spp., Argentina, FRENZEL, Bibl. Zool. xii.

*Micromastix*, n. g. with *M. januarii*, & sp., Argentina ; FRENZEL, Bibl. Zool. xii, p. 37, pl. ii, fig. 8.

*Pontomyxa*, n. g. with *P. flava*, & sp. Banyuls, France, on *Microcosmus sabatieri* ; TOPSENT, C.R. cxiv, p. 774.

*Saccamœba*, n. g. with *S. punctata*, p. 2, pl. iii, figg. 5 & 6, *lucens*, p. 7, pl. i, fig. 11, *magna*, p. 8, pl. iii, fig. 19, *cubica*, p. 13, pl. iv, figg. 12 & 13, *morula*, p. 14, pl. i, fig. 10, *renacuajo*, p. 16, pl. i, figg. 7 & 8, *cirrifer*, p. 11, pl. ii, fig. 6, n. spp., Argentina, FRENZEL, Bibl. Zool. xii.

*Tricholimax*, n. g. with *T. hylae*, & sp., Argentina ; FRENZEL, Bibl. Zool. xii, p. 35, pl. iii, figg. 2–4.

## Class 5.—HELIOZOA.

- Actinophrys alveolata*, Sydney, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s. iv, p. 549, n. sp.
- Astrodisculus araneiformis*, Melbourne, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv, p. 549, n. sp.
- Elæorhanis arenosa*, Argentina, FRENZEL, Bibl. Zool. xii, p. 72, pl. vi, fig. 12, n. sp.
- Estrella*, n. g. with *E. aureola*, p. 74, pl. vi, fig. 16, *socialis*, p. 75, pl. vi, figg. 5 & 7, n. spp., Argentina, FRENZEL, Bibl. Zool. xii.
- Heliosphærium*, n. g. with *H. aster*, p. 76, pl. vi, figg. 10 & 11, and pl. x, fig. 4, *polyedricum*, p. 79, pl. vi, figg. 6, 9, & 17, and pl. x, fig. 5, n. spp., Argentina, FRENZEL, Bibl. Zool. xii.
- Lithosphærella*, n. g. with *L. compacta*, & sp., Argentina, FRENZEL, Bibl. Zool. xii, p. 73, pl. vi, figg. 13 & 15.
- Monobia solitaria*, Sandwich Is., Oahu, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv, p. 548, n. sp.
- Nuclearella*, n. g. with *N. variabilis*, & sp., Argentina, FRENZEL, Bibl. Zool. xii, p. 63, pl. i, figg. 1 & 2, pl. ii, figg. 1, 2, & 10, and pl. iv, fig. 16.
- Nuclearia polypodia*, Malay Archipelago, Bali, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv, p. 548, n. sp.
- Nuclearina*, n. g. with *N. leuckarti*, & sp., Argentina, FRENZEL, Bibl. Zool. xii, p. 59, pl. vi, figg. 4, 8, & 18.

## Class 6.—RETICULARIA.

- Amphicoryne parasitica*, SCHLUMBERGER, Mém. Soc. Zool. v, p. 211, pl. vii, figg. 10–12, Azores, depth 130 metres, n. sp.
- Biloculina sarsi*, p. 553, pl. ix, figg. 55–59, woodcuts 10–12, North Sea, 2000 faths.; *labiata*, p. 556, pl. ix, figg. 60–62, woodcuts 13 & 14, Mediterranean, 555 metres; *bradyi*, p. 557, pl. x, figg. 63–71, woodcuts 15–19, Atlantic, Bay of Biscay, 1850 metres; *vespertilio*, p. 561, pl. x, figg. 74–76, woodcuts 20–22, Bay of Biscay, 1850 metres; *fischeri*, p. 563, pl. xi, figg. 77 & 78, woodcuts 23–25, Bay of Biscay, 1850 metres; *milne-edwardsi*, p. 567, pl. xi, figg. 79 & 80, woodcuts 29 & 30; *pisum*, p. 569, pl. xi, figg. 81–83, woodcut 31, Mediterranean; *anomala*, p. 569, pl. xi, figg. 84–86, and pl. xii, fig. 101, woodcuts 32–34, Mediterranean, 555 metres; SCHLUMBERGER, Mém. Soc. Zool. iv : n. spp.
- † *Bolivinopsis*, n. g. and *B. capitata*, Cretaceous, Russia; JAKOWLEW, Trav. Soc. Univ. Karkow, xxiv, p. 349, n. sp.
- † *Bulimina brevicona*, p. 54, pl. iv, figg. 1 *a*, *b*, *inflata*, p. 55, pl. iii, figg. 4 *a*, *b*, *c*, *conoidea*, p. 55, pl. iii, figg. 5 *a*, *b*, *depressa*, p. 55, pl. iii, figg. 3 *a*, *b*, Cenoman, Kamajk, Bohemia, PERNER, Palæontographica Bohemiæ, i : n. spp.
- † *B. presli*, Reuss, var. *sabulosa*, n. var.; CHAPMAN, J. R. Micr. Soc. 1892, p. 755, pl. xii, fig. 5, Gault of Folkestone.

- Clavulina obscura*, Shore mud of Southport, CHASTER, Rep. Southport Soc. i, p. 58, pl. i, fig. 4, n. sp.
- Discorbina minutissima*, Shore mud of Southport, CHASTER, Rep. Southport Soc. i, p. 65, pl. i, fig. 15, n. sp.
- †*Fronicularia fritschi*, p. 58, pl. vii, figg. 1 *a, b, c*, Cenoman, Kamajk, Bohemia, *coronata*, p. 58, pl. vii, figg. 2 *a, b*, Cenoman, Gangberg, Bohemia, *linea*, p. 59, pl. vii, figg. 3 *a, b*, *parallela*, pl. 59, pl. vii, figg. 5 *a, b*, Kamajk, *obsoleta*, p. 59, pl. vii, figg. 6 *a, b*, *conica*, p. 59, pl. vii, figg. 7 *a, b*, *bohémica*, p. 60, pl. vii, fig. 4, *quadrígona*, p. 60, pl. vii, figg. 8 *a, b*, *incerta* (n. sp. ?), p. 60, pl. vii, figg. 10 *a, b*, *gracilis*, p. 60, pl. viii, fig. 9, *lanceolata*, p. 60, pl. vii, figg. 12 *a, b*, *foliacea*, p. 61, pl. vii, figg. 13 *a, b*, *acutangula*, p. 61, pl. vii, fig. 11, Kamajk, PERNER, Palæontographica Bohemiæ, i : n. spp.
- †*Gaudryina dispansa*, Gault of Folkestone, CHAPMAN, J. R. Micr. Soc. 1892, p. 753, pl. xi, figg. 10 *a, b*, n. sp.
- †*Haplophragmium elegans*, n. sp., p. 322, pl. v, fig. 10, *H. latidorsatum*, Born, var. *papillosa*, n. var., p. 323, pl. v, fig. 13, Gault of Folkestone ; CHAPMAN, J. R. Micr. Soc. 1892.
- †*Haplostiche oligostegia*, PERNER, Palæontographica Bohemiæ, i, p. 53, pl. ii, figg. 13 & 14, Cenoman, Gangberg, Bohemia ; *H. sherborniana*, Gault of Folkestone, CHAPMAN, J. R. Micr. Soc. 1892, p. 325, pl. vi, figg. 6-8 : n. spp.
- Lagena millettii*, p. 61, pl. i, fig. 10, *falcata*, p. 61, pl. i, fig. 7, *depressa*, p. 62, pl. i, fig. 5, *protea*, p. 62, pl. i, fig. 14, Shore mud, Southport, CHASTER, Rep. Southport Soc. i, n. spp.
- Lingulina herdmanni*, Shore mud, Southport, CHASTER, Rep. Southport Soc. i, p. 63, pl. i, fig. 9, n. sp.
- †*Lituola cylindrica*, p. 52, pl. ii, figg. 7-12, Cenoman, Kamajk, Bohemia, *globigerinoides*, p. 52, pl. ii, figg. 15-17, PERNER, Palæontographica Bohemiæ, i, n. spp.
- †*Miliolina maggii*, Pliocene, River Arno, CORTI, p. 66, fig. 1*a*, Boll. scient. xiv, n. sp.
- †*Nodosaria longispina*, Cretaceous, Russia, JAKOWLEW, Trav. Soc. Univ. Kharkow, p. 343 ; *N. mayeri*, Cretaceous, Bohemia, PERNER, SB. Böhm. Ges. 1892, p. 43 ; *cryptostegia*, p. 56, pl. vi, fig. 2, Cenoman, Kamajk, Bohemia, *clavata*, p. 56, fig. 4, *subnodosa*, p. 57, fig. 5, *pseudaffinis*, p. 57, figg. 6 *a, b*, *bohémica*, p. 57, figg. 7-9, *divergens*, p. 57, fig. 11, Kamajk, PERNER, Palæontographica Bohemiæ : n. spp.
- †*Nummulites javanus*, Java, VERBEEK, Nat. Tijdschr. Nederl. Ind. li, p. 105, pl. i, figg. 1-3, n. sp.
- †*Polymorphina orbignii*, Zbor. sp., *cervicornis*, n. var., Gault of Folkestone ; CHAPMAN, Geol. Mag. (n.s.) (3) ix, p. 54, pl. ii, figg. 5 & 6.
- Psammonyx*, n. g. with *P. vulcanicus*, & sp., Sagami Bay, Japan, 100-200 faths. ; DÖDERLEIN, Verh. deutsch. Zool. Ges. ii, p. 145.
- Puleimulina nitidula*, Shore mud, Southport, CHASTER, Rep. Southport Soc. i, p. 66, pl. i, fig. 17, n. sp.

- Ramulina grimaldii*, Fosse de Fayal, between Fayal and Pico (Azores), 130 metres, SCHLUMBERGER, Mém. Soc. Zool. iv, p. 509, pl. v, n. sp.
- †*Reophax lageniformis*, p. 319, pl. v, figg. 1 *a, b*, *folkestoniensis*, p. 321, pl. v, figg. 6 *a, b*, *cylindracea*, p. 321, pl. v, figg. 7 *a, b*, Gault of Folkestone, CHAPMAN, J. R. Micr. Soc. 1892, n. spp.
- Rheophax scotti*, Shore mud, Southport, CHASTER, Rep. Southport Soc. i, p. 57, pl. i, fig. 1, n. sp.
- †*Rotalia evoluta*, Pliocene, River Arno, CORTI, Boll. scient. xiv, p. 67, figg. 2 *a*, n. sp.
- †*Spirillina minima*, p. 159, pl. i, fig. 4, *trochiformis*, p. 159, pl. i, fig. 3, Cretaceous, Helle Mühle near Moltzow, Mecklenburg; SCHACKO, Arch. Ver. Mecklenb. xlv.
- †*Spiroculina*, n. sp., SCHACKO, Arch. Ver. Mecklenb. xlv, p. 158, pl. i, fig. 1, Cretaceous, Helle Mühle near Moltzow, Mecklenburg.
- Textularia fusiformis*, Shore mud, Southport, CHASTER, Rep. Southport Soc. i, p. 58, pl. i, fig. 3, n. sp.
- †*T. brevicornis*, p. 54, pl. ix, fig. 12, *parallela*, p. 54, pl. ix, fig. 13, Cenoman, Kamajk, Bohemia, PERNER, SB. Böhm. Ges. 1892, n. spp.
- Trichosphaerium sieboldii*, Schn., belongs, according to GREEFF, Zool. Anz. xv, (1892) pp. 62-64, to the monothalamous *Foraminifera*.
- Triloculina aspergillum*, Azores, SCHLUMBERGER, Mém. Soc. Zool. v, p. 207, pl. viii, figg. 8 & 9, 1 woodcut, n. sp.
- †*Trochammina concava*, Gault of Folkestone, CHAPMAN, J. R. Micr. Soc. 1892, p. 327, pl. vi, figg. 14 *a, b*; *T. serpuloides*, Cretaceous, Helle Mühle near Moltzow, Mecklenburg, SCHACKO, Arch. Ver. Mecklenb. xlv, p. 159, pl. 1, fig. 5 : n. spp.
- †*Vitriwebbina*, n. g. with *V. sollasi*, & sp., Gault of Folkestone; CHAPMAN, Geol. Mag. (3) ix, p. 53, pl. ii, figg. 1-3.

## Class 7.—RADIO-LARIA.

- †*Acantosphaera entactinia*, p. 147, pl. xiii, fig. 1, Carboniferous, Hartz Mountains, *A. macracantha*, Silurian, Cabrières, p. 147, pl. xiii, fig. 2, RÜST, Palæontogr. xxxviii, n. spp.
- †*Acrosphaera herzynica*, Devonian, Schæbenholz, p. 140, pl. ix, fig. 3, *A. glitzii*, Carboniferous, Hartz Mountains, p. 140, pl. ix, fig. 2, RÜST, Palæontogr. xxxviii, n. spp.
- †*Actinomma schæbenholzianum*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 148, pl. xiv, fig. 5, n. sp.
- †*Amphibrachium inaequale*, p. 170, pl. xxiii, fig. 10, *A. bacillum*, p. 169, pl. xxiii, fig. 9, *A. pulchellum*, p. 169, pl. xxiii, fig. 8, Devonian, South Ural, *A. devoniense*, Carboniferous, South Ural, p. 169, pl. xx, fig. 8, *A. desecatum*, Carboniferous, Sicily, p. 169, pl. xx, fig. 9, RÜST, Palæontogr. xxxviii; †*A. crassum*, pl. v, fig. 9, *truncatum*, fig. 10, *fragile*, fig. 11, p. 223, Fanny Bay, Port Darwin, HINDE, Q. J. Geol. Soc. xlix : n. spp.
- †*Amphyhemium alienum*, pl. xxiv, fig. 2, *A. krautii*, fig. 1, Devonian, Schæbenholz, RÜST, Palæontogr. xxxviii, p. 170, n. spp.

- † *Archidiscus lens*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 166, pl. xxii, fig. 5, n. sp.
- † *Æcellipsis longitudinalis*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 152, pl. xvi, fig. 6, n. sp.
- Cannosphæra geometrica*, Atlantic, BORGERT, Ergeb. Plankt. Exp. p. 182, pl. vi, fig. 6, n. sp.
- † *Carposphæra infracrinata*, pl. vii, fig. 3, *C. jejuna*, fig. 1, *C. macractinea*, fig. 4, *C. magna*, fig. 2, p. 136, Carboniferous, Hartz Mountains, *C. pygmæa*, p. 135, pl. vi, fig. 13, Carboniferous, Hartz Mountains and Sicily, Rüst, Palæontogr. xxxviii, n. spp.
- † *Caryosphæra groddeckii*, Devonian, Schæbenholz, Rüst, Palæontogr. xxxviii, p. 139, pl. ix, fig. 1, n. sp.
- † *Cecryphalum infundibulum*, Carboniferous, Sicily, p. 184, pl. xxvii, fig. 10, *C. oligoporum*, Permian, Nowgorod, p. 183, fig. 9, Rüst, Palæontogr. xxxviii, n. spp.
- † *Cenellipsis diversipora*, Silurian, Cabrières, p. 151, pl. xv, fig. 5, *C. cepæformis*, Devonian, Schæbenholz, p. 152, pl. xvi, fig. 1, *C. pusilla*, Trias; Röthelstein, pl. xvi, fig. 5, *C. areolata*, pl. xv, fig. 10, *C. citrus*, fig. 8, p. 151, Devonian, South Ural, *C. multiplex*, Carboniferous, Bükk Mountains, pl. xvi, fig. 3, *C. reticulosa*, Carboniferous, Hartz Mountains, fig. 2, *C. cypridina*, pl. xv, fig. 9, p. 152, *C. rectipora*, fig. 6, *C. curvatoporata*, fig. 7, Devonian, South Ural, *C. perovalis*, Carboniferous, Hartz Mountains, pl. xvi, fig. 4, p. 151, Rüst, Palæontogr. xxxviii, n. spp.
- † *Cenodiscus intermedius*, pl. xix, fig. 10, *C. nummularis*, fig. 9, p. 162, Carboniferous, Hartz Mountains, *C. primordialis*, Silurian, Cabrières, p. 161, fig. 8, Rüst, Palæontogr. xxxviii, n. spp.
- † *Cenosphæra asturana*, Trias, Astura, pl. vi, fig. 7, *C. bakonyana*, Trias, Felső Eörs, Bakony, fig. 4, *C. carbonica*, fig. 2, *C. ingens*, fig. 8, Carboniferous, Hartz Mountains, *C. castanea*, Devonian, Schæbenholz, Hartz Mountains, fig. 5, *C. uralensis*, fig. 3, *C. rossica*, fig. 9, p. 134, *C. apiaria*, fig. 6, p. 135, Devonian, South Ural, *C. macropora*, fig. 1, p. 134, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, n. spp.
- Challengeron rottenburgi*, pl. vi, fig. 1, *neptuni*, p. 180, figg. 2 & 3, Irminger Sea, Atlantic, BORGERT, Ergeb. Plankt. Exp., n. spp.
- † *Cornutanna cornu-vaccinum*, Trias, Röthelstein, pl. xxvi, fig. 11, *C. dilatata*, fig. 12, *C. macropora*, fig. 13, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 180, n. spp.
- † *Cromyodruppa prunulina*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 157, pl. xviii, fig. 5, n. sp.
- † *Cromyomma grandævum*, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, p. 149, pl. xiv, fig. 7, n. sp.
- † *Cromyosphæra alternans*, Carboniferous, Sicily, pl. viii, fig. 7, *C. distans*, Devonian, South Ural, fig. 6, *C. eminens*, fig. 8, p. 139, *C. frequens*, fig. 2, *C. radiata*, Carboniferous, Hartz Mountains, fig. 5, *C. petschoræ*, Carboniferous, Ural, pl. viii, fig. 3, *C. prisca*, Silurian, Cabrières, fig. 4, p. 138, Rüst, Palæontogr. xxxviii, n. spp. <sup>4</sup>

- † *Crucidiscus præcursor*, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, p. 163, pl. xx, fig. 6, n. sp.
- † *Cyphanta piscis*, p. 160, pl. xix, fig. 5, *C. quiniseriata*, p. 161, fig. 6, Devonian, South Ural, Rüst, Palæontogr. xxxviii, n. spp.
- † *Cyrtocalpis serieporata*, pl. xxvi, fig. 16, *C. obtusa*, fig. 15, Devonian, South Ural, *C. prima*, fig. 14, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 180, n. spp.
- † *Dictyocephalus ventricosus*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 182, pl. xxvii, fig. 5, n. sp.
- † *Dictyomitra magnifica*, pl. xxix, fig. 1, *D. micropora*, pl. xxviii, fig. 11 & pl. xxix, fig. 2, p. 188, Carboniferous, Sicily, *D. pumilio*, Devonian, Schæbenholz, pl. xxviii, fig. 10, p. 187, *D. sasinana*, Siliceous Limestone, Astura, p. 188, pl. xxix, fig. 4, Rüst, Palæontogr. xxxviii; *D. australis*, pl. v, fig. 14, *triangularis*, pl. v, fig. 15, Fanny Bay, Port Darwin, HINDE, p. 224, Q. J. Geol. Soc. xlix : n. spp.
- † *Dictyophimus dubius*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 181, pl. xxvii, fig. 3, n. sp.
- † *Dizonium laeve*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 174, pl. xxv, fig. 8, n. sp.
- † *Druppattractus dictyococcus*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 158, pl. xviii, fig. 9, n. sp.
- † *Druppula amygdalina*, Carboniferous, Petschora, p. 155, pl. xvii, fig. 7, *D. angustiporata*, pl. xviii, fig. 1, *D. cornus*, fig. 2, p. 156, Carboniferous, Bükk Mountains, *D. andreana*, pl. xvii, fig. 5, p. 155, *D. berberis*, fig. 11, *D. crucifera*, fig. 10, p. 156, *D. endechinata*, fig. 9, p. 155, *D. fixata*, Carboniferous, Sicily, fig. 12, p. 156, *D. pomatia*, Trias, Astura, fig. 6, *D. cembra*, Devonian, South Ural, fig. 8, p. 155, *D. silurica*, Silurian, Langenstrieigis, fig. 4, p. 154, Rüst, Palæontogr. xxxviii, n. spp.
- † *Dystympanium carbonicum*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 177, pl. xi, fig. 9, n. sp.
- † *Echinomma oligacanthum*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 149, pl. xiv, fig. 6, n. sp.
- † *Ellipsidium aculeatum*, p. 152, pl. xvi, fig. 7, *E. spinosum*, p. 153, pl. xvii, fig. 1, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, n. spp.
- † *Ellipsostylus obliquus*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 153, pl. xvi, fig. 11, n. sp.
- † *Ellipsoxiphus hystrix*, Carboniferous, Hartz Mountains, pl. xvi, fig. 10, *E. procerus*, Carboniferous, Lerbach, fig. 9, Rüst, Palæontogr. xxxviii, p. 153, n. sp.
- Euphysetta lucani*, Atlantic, BORGERT, Ergeb. Plankt. Exp., p. 182, pl. vi, fig. 8, n. sp.
- † *Halicalyptra aculeata*, Carboniferous, Petschora, Rüst, Palæontogr. xxxviii, p. 179, pl. xxvi, fig. 7, n. sp.
- † *Halicapsa megapora*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 181, pl. xxvii, fig. 2, n. sp.

- † *Haliomma speciosum*, Carboniferous, Sicily, pl. xiv, fig. 2, *H. stigmophorum*, Carboniferous, Hartz Mountains, pl. xiii, fig. 4, Rüst, p. 148, Palæontogr. xxxviii, n. spp.
- † *Heliodiscus acucinatus*, Silurian, Cabrières, pl. xxii, fig. 1, *H. saturnalis*, Carboniferous, Hartz Mountains, fig. 2, Rüst, p. 165, Palæontogr. xxxviii, n. spp.
- † *Heliosoma mojsisovicsi*, Carboniferous, Hartz Mountains, pl. xiv, fig. 4, *H. roemeri*, Silurian, Cabrières, fig. 3, Rüst, p. 184, Palæontogr. xxxviii, n. spp.
- † *Heliosphæra bardanum*, pl. xiii, fig. 3, *H. kjrulfi*, pl. xiv, fig. 1, p. 147, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, n. spp.
- † *Hexalastrum infans*, Carboniferous, Bükk Mountains, Rüst, Palæontogr. xxxviii, p. 172, pl. xxiv, fig. 9, n. sp.
- † *Hexalonche palæozoica*, Devonian, Schæbenholz, pl. xii, fig. 7, *H. valida*, Carboniferous, Sicily, fig. 6, p. 146, Rüst, Palæontogr. xxxviii, n. spp.
- † *Liosphæra devoniensis*, Devonian, South Ural, pl. vii, fig. 5, *L. mera*, Silurian, Cabrières, fig. 6, p. 136, Rüst, Palæontogr. xxxviii, n. spp.
- † *Lithapium siluricum*, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, p. 154, pl. xvii, fig. 3, n. sp.
- † *Lithatractus brevispinus*, pl. xviii, fig. 7, *L. perforatus*, p. 158, pl. xviii, fig. 8, Carboniferous, Sicily, *L. mejeri*, Carboniferous, Hartz Mountains, fig. 6, p. 157, Rüst, Palæontogr. xxxviii, n. spp.
- † *Lithelius difficilis*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 175, pl. xxvi, figg. 1 & 2, n. sp.
- † *Lithocampe lossenii*, pl. xxix, fig. 6, *L. tschernytshewii*, fig. 8, p. 189, *L. orenburgensis*, fig. 5, p. 188, Devonian, South Ural, *L. obliqua*, Siliceous Limestone, Röthelstein, p. 190, fig. 7, *L. pyramis*, fig. 11, *L. sphærocephalica*, fig. 9, *L. stenostoma*, p. 189, fig. 10, Carboniferous, Sicily, *L. tutata*, Carboniferous, Bükk Mountains, p. 190, fig. 12, Rüst, Palæontogr. xxxviii; *L. fusiformis*, Port Darwin, HINDE, Q. J. Geol. Soc. xlix, p. 225, pl. v, fig. 16, : n. spp.
- † *Lithocyclia macrococcus*, Devonian, Schæbenholz, pl. xxii, fig. 4, *L. ulrichi*, Carboniferous, Hartz Mountains, pl. xxii, fig. 3, p. 166, Rüst, Palæontogr. xxxviii; *L. exilis*, Fanny Bay, Port Darwin, HINDE, Q. J. Geol. Soc. xlix, p. 223, pl. v, fig. 8, : n. spp.
- † *Lithomespilus bipolaris*, Carboniferous, Hartz Mountains, p. 154, pl. xvi, fig. 12, *L. hexacanthus*, Silurian, Langenstriegis, fig. 8, p. 153, *L. steinvorthi*, Devonian, Schæbenholz, p. 154, pl. xvii, fig. 2, Rüst, Palæontogr. xxxviii, n. spp.
- † *Lithomitra forficula*, Siliceous Limestone, Röthelstein, Rüst, Palæontogr. xxxviii, p. 188, pl. xxix, fig. 3, n. sp.
- † *Lithostrobos wendlandi*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 187, pl. xxviii, fig. 9, n. sp.
- † *Odontosphæra echinocactus*, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, p. 140, pl. ix, fig. 4, n. sp.
- † *Pentalastrum primitivum*, Carboniferous, Bükk Mountains, Rüst, Palæontogr. xxxviii, p. 172, pl. xxiv, fig. 8, n. sp.

- † *Peripanartus deficiens*, Devonian, South Ural, Rüst, Palæontogr. xxxviii, p. 161, pl. xix, fig. 7, n. sp.
- † *Phænoscenium excentricum*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 179, pl. xxvi, figg. 8-10, n. sp.
- † *Phorticium macropylum*, Silurian, Langenstriefis, Rüst, Palæontogr. xxxviii, p. 175, pl. xxvi, figg. 4 & 5, n. sp.
- † *Porodiscus cabrierensis*, Silurian, Cabrières, pl. xxiii, fig. 3, *P. intricatus*, p. 168, fig. 5, *P. rossicus*, pl. xxii, fig. 6, p. 168, Devonian, South Ural, *P. paronæ*, pl. xxiii, fig. 2, *P. parvulus*, pl. xxii, fig. 7, p. 167, *P. subspiralis*, p. 168, pl. xxiii, fig. 4, Muschelkalk, Felsö Eörs, *P. triassicus*, Muschelkalk, Röthelstein, p. 167, fig. 1, Rüst, Palæontogr. xxxviii, n. spp.
- † *Prismatium paradietum*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 178, pl. x, fig. 10, n. sp.
- † *Prunulum armeniacum*, Devonian, Schæbenholz, pl. xviii, fig. 4, *P. mur-rayi*, Carboniferous, Hartz Mountains, fig. 3, p. 157, Rüst, Palæontogr. xxxviii, n. spp.
- † *Pterocanium tenuecostatum*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 183, pl. xxvii, fig. 8, n. sp.
- † *Rhizoplegma betulinum*, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, p. 150, pl. xv, fig. 2, n. sp.
- † *Rhodosphæra crucifera*, Carboniferous, Hartz Mountains, pl. vii, fig. 11, *R. idonea*, fig. 9, p. 137, *R. pulchra*, p. 138, pl. viii, fig. 1, Carboniferous, Sicily, *R. devoniensis*, Devonian Schæbenholz, p. 137, pl. vii, fig. 10, Rüst, Palæontogr. xxxviii, n. spp.
- † *Rhopalastrum carbonicum*, Carboniferous, Hartz Mountains, p. 170, pl. xxiv, fig. 3, *R. giganteum*, fig. 6, *R. isselii*, fig. 5, *R. siculum*, fig. 4, p. 171, Carboniferous, Sicily, Rüst, Palæontogr. xxxviii, n. spp.
- † *Rhopalodictyum astrictum*, Devonian, Schæbenholz, Rüst, Palæontogr. xxxviii, p. 174, pl. xxv, fig. 7, n. sp.
- † *Sethocopsa obstipa*, Devonian, South Ural, p. 182, pl. xxvii, fig. 6, *S. oclusiva*, Muschelkalk, Felsö Eörs, p. 183, fig. 7, Rüst, Palæontogr. xxxviii, n. spp.
- † *Sethocyrtis excisa*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 182, pl. xxvii, fig. 4, n. sp.
- † *Sethostaurus exsculptus*, Silurian, Cabrières, Rüst, Palæontogr. xxxviii, p. 165, pl. xxi, fig. 7, n. sp.
- † *Sphæropyle*, n. g., Dreyer, p. 140, with † *S. dreyeri*, p. 141, pl. ix, fig. 6, *S. laevis*, p. 140, fig. 5, Devonian, South Ural, *S. entostoma*, fig. 9, *S. eurystoma*, fig. 8, Carboniferous, Sicily, *S. multangularis*, Carboniferous, Hartz Mountains, fig. 7, p. 141, Rüst, Palæontogr. xxxviii, n. spp.
- † *Spirocapsa*, n. g. for † *S. singularis*, n. sp., Carboniferous, Sicily; Rüst, Palæontogr. xxxviii, p. 192, pl. xxx, fig. 13.
- † *Spironium hœckelii*, Carboniferous, Hartz Mountains, Rüst, Palæontogr. xxxviii, p. 175, pl. xxvi, fig. 3, n. sp.

- †*Spongatractus coccostylus*, Silurian, Cabrières, pl. xix, fig. 8, *S. pleurosigma*, Carboniferous, Sicily, pl. xix, fig. 4, p. 160, RÜST, Palæontogr. xxxviii, n. spp.
- †*Spongocyrtis eurodictyum*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 181, pl. xxvii, fig. 1, n. sp.
- †*Spongodictyon triquetrum*, Devonian, South Ural, RÜST, Palæontogr. xxxviii, p. 140, pl. viii, fig. 10, n. sp.
- †*Spongodiscus herzynicus*, Devonian, Schæbenholz, RÜST, p. 172, pl. xxv, fig. 2, Palæontogr. xxxviii; *S. expansus*, Port Darwin, HINDE, p. 224, pl. v, fig. 6, Q. J. Geol. Soc. xlix: n. spp.
- †*Spongodruppa ornithopus*, p. 160, pl. xix, fig. 3, *S. triradiata*, fig. 2, p. 159, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, n. spp.
- †*Spongolena symmetrica*, Port Darwin, HINDE, Q. J. Geol. Soc. xlix, p. 224, pl. v, fig. 12, n. sp.
- †*Spongophacus hantkenii*, Muschelkalk, Felsö Eörs, RÜST, Palæontogr. xxxviii, p. 172, pl. xxv, fig. 3, n. sp.
- †*Spongopila juniperina*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 149, pl. xv, fig. 1, n. sp.
- †*Spongoprimum holodictyosum*, Carboniferous, Hartz Mountains, pl. xix, fig. 1, *S. trispinosum*, Carboniferous, Sicily, pl. xviii, fig. 13, p. 159, RÜST, Palæontogr. xxxviii, n. sp.
- †*Spongosphæra induta*, Devonian, South Ural, RÜST, Palæontogr. xxxviii, p. 150, pl. xv, figg. 3 & 4, n. sp.
- †*Spongotripus concentricus*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 173, pl. xxv, fig. 4, n. sp.
- †*Spongotrochus elongatus*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 173, pl. xxv, fig. 6, n. sp.
- †*Spongurus lucunosus*, Devonian, Schæbenholz, pl. xviii, fig. 12, *S. plantæformis*, fig. 11, p. 159, *S. variabilis*, fig. 10, p. 158, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, n. sp.
- †*Stauracantium inaequale*, Carboniferous, Sicily, pl. xii, fig. 4, *S. incompletum*, fig. 3, *S. xiphophorum*, fig. 5, Carboniferous, Hartz Mountains, RÜST, p. 145, Palæontogr. xxxviii, n. spp.
- †*Stauralastrum aculeatum*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 171, pl. xxiv, fig. 7, n. sp.
- †*Staurolonche hantkenii*, Trias, Felsö Eörs, pl. xi, fig. 6, *S. macracantha*, fig. 5, *insignis*, pl. xii, fig. 1, Carboniferous, Sicily, *spinigera*, Carboniferous, Hartz Mountains, pl. xi, fig. 4, p. 144, *S. micropora*, Silurian, Cabrières, p. 143, fig. 3, RÜST, Palæontogr. xxxviii, n. spp.
- †*Staurolonchidium coheni*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 144, pl. xii, fig. 2, n. sp.
- †*Staurosphæra fragilis*, pl. x, fig. 4, *S. quadrangularis*, fig. 5, Silurian, Cabrières, *setispina*, Carboniferous, Petschora, fig. 6, RÜST, p. 143, Palæontogr. xxxviii, n. spp.
- †*Staurostylus tenuispinus*, Carboniferous, Hartz Mountains, pl. xi, fig. 2, *xiphophorus*, Carboniferous, Petschora, fig. 1, RÜST, p. 143, Palæontogr. xxxviii, n. spp.

- † *Stichocapsa anguillula*, pl. xxx, fig. 11, *S. elpenor*, p. 192, fig. 10, *S. tænia*, pl. xxx, fig. 12, p. 192, Devonian, South Ural, *S. biceps*, fig. 7, *S. citriformis*, fig. 8, *S. ellipsoides*, fig. 6, *S. gravis*, fig. 1, pupa, fig. 9, Carboniferous, Sicily, *S. bükkiana*, Carboniferous, Bükk Mountains, fig. 5, p. 191, RÜST, Palæontogr. xxxviii; *S. pinguis*, pl. v, fig. 17, *S. chrysalis*, pl. v, fig. 18, p. 225, Port Darwin, HINDE, Q. J. Geol. Soc. xlix : n. spp.
- † *Stichopera aculeata*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 186, pl. xxviii, fig. 7, n. sp.
- † *Stigmatosphaera mira*, pl. vi, fig. 11, *S. rothpletzii*, fig. 10, *S. suspecta*, fig. 12, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 135, n. spp.
- † *Stigmatosphaerostylus*, n. g. for *S. notabilis*, n. sp., Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 142, pl. x, fig. 2.
- † *Stilodictya polaris*, p. 169, pl. xxv, fig. 1, *S. zittelii*, p. 168, pl. xxiii, figg. 6 & 7, Devonian, Schæbenholz, RÜST, Palæontogr. xxxviii, n. spp.
- † *Stylodiscus dictyosus*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 162, pl. xx, fig. 1, n. sp.
- † *Stylosphaera acuta*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 142, pl. x, fig. 3, n. sp.
- † *Stylotrochus dolfussi*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 173, pl. xxv, fig. 5, n. sp.
- † *Tetrapylonium ovatum*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 174, pl. xxv, fig. 9, n. sp.
- † *Thecosphaera sexactis*, Carboniferous, Hartz Mountains, pl. vii, fig. 8, *P. sicula*, Carboniferous, Sicily, fig. 7, RÜST, p. 137, Palæontogr. xxxviii, n. spp.
- † *Theocampe bulbosa*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 185, pl. xxvii, fig. 12, n. sp.
- † *Theocyrtis apis*, Muschelkalk, Astura, RÜST, Palæontogr. xxxviii, p. 184, pl. xxvii, fig. 11, n. sp.
- † *Theodiscus brachyacanthus*, pl. xx, fig. 2, *T. convexus*, fig. 3, Carboniferous, Hartz Mountains, *T. gigas*, fig. 4, *T. planus*, fig. 5, Silurian, Cabrières, RÜST, p. 163, Palæontogr. xxxviii, n. spp.
- † *Theosyringium præcox*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 184, pl. xxviii, fig. 1, n. sp.
- † *Tricolocapsa abdominalis*, pl. xxviii, fig. 4, *T. thoracica*, fig. 3, p. 186, Carboniferous, Sicily, *T. anceps*, fig. 6, *T. grandæva*, fig. 5, p. 185, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, n. spp.
- † *Tripilidium dissociatum*, Carboniferous, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 178, pl. xxvi, fig. 6, n. sp.
- † *Trissocircus primævus*, Carboniferous, Sicily, pl. xi, fig. 7, *T. quadratus*, Devonian, South Ural, pl. x, fig. 9, p. 177, RÜST, Palæontogr. xxxviii, n. spp.
- † *Trochodiscus convexus*, p. 164, pl. xx, fig. 7, *T. longispinus*, pl. xxi, fig. 4, p. 165, *T. nicholsoni*, fig. 3, *T. proavus*, fig. 1, *T. serrula*, fig. 2, Carboniferous, Hartz Mountains, *T. recurvispinus*, Devonian, Schæben-

- holz, fig. 5, *T. diversispinus*, Silurian, Cabrières, fig. 6, p. 164, RÜST, Palæontogr. xxxviii, n. spp.
- Tuscarora nationalis*, Irminger Sea, Atlantic, 600 metres, BORGERT, Ergeb. Plankt. Exp. p. 182, pl. vi, fig. 7, n. sp.
- † *Xiphosphara macrostyla*, Devonian, Hartz Mountains, RÜST, Palæontogr. xxxviii, p. 141, pl. ix, fig. 10, n. sp.
- † *Xiphostylus ardea*, Carboniferous, Hartz Mountains, pl. x, fig. 1, *X. asper*, Silurian, Cabrières, pl. ix, fig. 11, p. 142, RÜST, Palæontogr. xxxviii, n. spp.
- † *Zonodiscus dentatus*, Silurian, Cabrières, pl. xix, fig. 11, *Z. macrozona*, Carboniferous, Hartz Mountains, fig. 12, RÜST, p. 162, Palæontogr. xxxviii, n. spp.
- † *Zygocircus priscus*, Carboniferous, Hartz Mountains, pl. x, fig. 8, *Z. simplicissimus*, Carboniferous, Sicily, fig. 7, RÜST, p. 176, Palæontogr. xxxviii, n. spp.
- † *Zygosterhanus quadripes*, Carboniferous, Sicily, RÜST, Palæontogr. xxxviii, p. 177, pl. xi, fig. 8, n. spp.

## *B.—CORTICATA.*

### Class 1.—SPOROZOA.

For a revised classification of the group, see MINGAZZINI (104).

- Blanchardia*, n. g. with *B. cypricola*, n. sp., parasitic in *Cypris candida*; SOLGER, p. 99, MT. Vorpomm. xxii.
- Ceratomyxa agilis*, pp. 962 & 963, in *Trygon vulgaris*, Concarneau, appendiculata, pp. 963 & 964, in *Lophius piscatorius*, Roscoff, arcuata, p. 1091, in *Motella tricirrata*, THÉLOHAN, C.R. cxv, n. spp.
- Coccidium cruciatum*, p. 136, in the liver of *Caranx trachurus*, Concarneau, minutum, p. 137, in liver, spleen, and kidney of Tench, THÉLOHAN, J. de l'Anat. Phys. 1892; *C. tenellum*, in intestinal epithelium of Fowl, truncatum, p. 249, in kidney of Fowl, RAILLIET & LUCET, p. 248, Bull. Soc. Z. Fr. xvi : n. spp.
- Cretya neapolitana*, in the pyloric appendages of *Sphyræna vulgaris*, MINGAZZINI, p. 400, fig. 2, Atti Acc. Pontif. Lincei (5), 1, n. sp.
- Gonobia colubri*, in vas deferens and testis of *Zamenis viridiflavus*, MINGAZZINI, p. 396, fig. 1, Atti Acc. Pontif. Lincei (5), 1, n. sp.
- Gregarina satiræ*, p. 234, pl. viii, figg. 1-15, in intestine of *Statira unicolor*, Bl., bergi, p. 286, pl. viii, figg. 16-19, in intestine of *Corynetes ruficollis*, panchloræ, p. 299, pl. viii, fig. 20, in intestine of *Panchlora exoleata*, blabera, p. 300, pl. viii, figg. 21-33, in intestine of *Blabera claraziana*, Córdoba, Argentina, FRENZEL, Jen. Z. Nat. xxvii; *G. irregularis*, MINCHIN, p. 291, pl. xxvii, Q. J. Micr. Sci. xxxiv, in bloodvessels of *Holothuria nigra*, at Plymouth : n. spp.
- Mycidium incurvatum*; THÉLOHAN, C.R. cxv, p. 1093, in *Motella tricirrata*.

*Pyxinia crystalligera*, in intestine of *Dermestes vulpinus*, Fabr., and *peruvianus*, Cateln., Córdoba, Argentina, FRENZEL, p. 314, pl. viii, figg. 34-50, Jen. Z. Nat. xxvii, n. spp.

*Sarcocystis hominis*, ROSENBERG, in human heart muscle, *S. platyductili*, BERTRAM, Zool. Jahrb. v, p. 584, pl. xxxviii, figg. 2-4, in muscle fibres of *Platyductylus facetanus*, Ald., s. *P. mauritanicus*, L., from Menorca, n. spp.

*Sphaeromyxa*, n. g. with *S. balbianii*, n. sp., THÉLOHAN, C.R. cxv, p. 1093, in *Motella tricirrata*.

## Class 2.—FLAGELLATA.

KLEBS, Z. wiss. Zool. lv, p. 278, gives the following definition of the group: *Flagellata* are lower organisms which possess a usually sharply defined uninuclear protoplasmic body, the periplast of which is either a simple cortical layer, or a differentiated plasmic membrane. They are in motion for the greatest part of their life, or at least they always remain capable of such. They all have a specially formed anterior end bearing one or more flagella, and one or more pulsating vacuoles. Reproduction takes place by simple longitudinal fission mostly during the flagellate state, sometimes when at rest. All are able to form resting cysts for a shorter or longer period.

He proposes the following classification:—

1. PROTOMASTIGINA. Families: *Rhizomastigina*, *Monadina*, *Bikæcida*, *Craspemonadina*, *Spongomonadina*, *Amphimonadina*, *Bodonina*.
2. POLYMASTIGINA. Families: *Trimastigina*, *Tetramitina*, *Distomata*.
3. EUGLENOIDINA. Families: *Euglenida*, *Astasiida*, *Peranemida*.
4. CHLOROMONADINA.
5. CHROMOMONADINA. Families: *Chrysomonadina*, *Cryptomonadina*.

*Anisonema variabile*, p. 385, pl. xvii, figg. 5 *a*, *b*, *striatum*, p. 386, figg. 14 *a*, *b*, *ovale*, p. 386, figg. 6 *b*, *c*, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.

*Astasiida*, n. fam., KLEBS, p. 356, Z. wiss. Zool. lv.

*Astasiodes lagenula*, Malay Archipelago, Bali, SCHEWIAKOFF, p. 551, Verh. Ver. Heidelb. (n.s.) iv, n. sp.

*Bodo minimus*, p. 310, pl. xiii, figg. 7 *a-d*, *edax*, p. 312, figg. 8 *a-c*, *celer*, p. 313, figg. 6 *a-c*, *mutabilis*, p. 317, pl. xiv, figg. 2 *a-c*, *repens*, p. 317, figg. 1 *a-c*, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.

*Chlamydomonas de-baryana*, near Moscow, p. 106, pl. i, figg. 9-12, *kuteinikowi*, p. 117, pl. ii, figg. 9-13, *reticulata*, p. 124, pl. iii, figg. 1-9, Lichobory and Butyrki, Russia, GOROSCHANKIN, Bull. Mosc. 1891, n. spp.

*Chloromonadina*, n. fam., KLEBS, p. 391, Z. wiss. Zool. lv.

*Chromomonadina*, n. fam., KLEBS, p. 394, Z. wiss. Zool. lv.

*Chromulina batalini*, Sydney, p. 550, SCHEWIAKOFF, Verh. Ver. Heidelb.

- (n.s.) iv ; *C. verrucosa*, Basle, KLEBS, p. 408, pl. xviii, fig. 6 *d*, Z. wiss. Zool. lv : n. spp.
- Chrysamæba*, n. g., with *C. radians*, n. sp., Basle, KLEBS, p. 407, pl. xviii, figg. 1 *a-c*, Z. wiss. Zool. lv.
- Chrysococcus*, n. g., with *C. rufescens*, n. sp., Basle, KLEBS, p. 413, pl. xviii, figg. 7 *a-f*, Z. wiss. Zool. lv.
- Ciliophrys australis*, Sydney, SCHEWIAKOFF, p. 549, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Cryptomonas marina*, Luc-sur-Mer, DANGEARD, Le Botaniste, iii, p. 32, pl. ii, fig. 20, n. sp.
- Dimorpha ovata*, p. 300, pl. xiii, figg. 3 *a-c*, *radiata*, p. 301, figg. 2 *a-g*, *alternans*, p. 303, figg. 9 *a-h*, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.
- Dimobryon undulatum*, Basle, KLEBS, p. 414, pl. xviii, figg. 10 *a, b*, Z. wiss. Zool. lv, n. sp.
- Distomata*, n. fam., KLEBS, p. 329, Z. wiss. Zool. lv.
- Entosiphon obliquum*, Basle, KLEBS, p. 390, pl. xvii, figg. 15 *a-c*, Z. wiss. Zool. lv, n. sp.
- Euglena elongata*, Ohinemutu, New Zealand, SCHEWIAKOFF, p. 550, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Euglenopsis*, n. g., with *E. vorax*, n. sp., Basle, KLEBS, p. 367, pl. xvii, figg. 2 *a-d*, Z. wiss. Zool. lv.
- Heteronema spirale*, Basle, KLEBS, p. 373, pl. xvii, fig. 12, Z. wiss. Zool. lv, n. sp.
- Hexamitus crassus*, pl. xv, figg. 9 *a, b*, *fusiformis*, pl. xvi, figg. 1 *a-c*, p. 339, *pusillus*, pl. xv, figg. 6 *a, b*, *fissus*, figg. 8 *a, b*, p. 338, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.
- Holomastigotes*, n. g., with *H. elongatum*, n. sp., parasitic in *Termes lucifugus* ; GRASSI, p. 36, Atti Acc. Pontif. Lincei (5) i.
- Jenia*, n. g., with *J. annectens*, n. sp., parasitic in *Calotermes flavicollis* ; GRASSI, p. 36, Atti Acc. Pontif. Lincei (5) i.
- Marsupiogaster*, n. g., with *M. striata*, n. sp., Oahu, SCHEWIAKOFF, p. 551, Verh. Ver. Heidelb. (n.s.) iv.
- Mastigamæba bütschlii*, p. 298, pl. xiv, figg. 23 *a, b*, *invertens*, p. 297, pl. xiii, figg. 1 *a-c*, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.
- Mastigosphæra*, n. g., with *M. gobii*, Tarawera, New Zealand, SCHEWIAKOFF, p. 552, Verh. Ver. Heidelb. (n.s.) iv.
- Maupasiasia*, n. g., with *M. paradoxa*, n. sp., Hawaii, Kilauea, 4000 feet, SCHEWIAKOFF, p. 552, Verh. Ver. Heidelb. (n.s.) iv.
- Microjenia*, n. g., with *M. hexamitoides*, n. sp., parasitic in *Termes lucifugus*, GRASSI, p. 36, Atti Acc. Pontif. Lincei (5) i.
- Monas obliqua*, New Zealand, Taupo Lake, SCHEWIAKOFF, p. 550, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Monocercomonas termitis*, parasitic in *Termes lucifugus* and *Calotermes flavicollis*, GRASSI, p. 36, Atti Acc. Pontif. Lincei (5) i, n. sp.
- Ochromonas mutabilis*, pl. xviii, figg. 2 & 3 *a, b*, *crenata*, pl. xviii, figg. 4 *a-e*, p. 411, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.

- Oikomonas excavata*, Sydney, SCHEWIAKOFF, p. 549, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Peranemida*, n. fam., KLEBS, p. 362, Z. wiss. Zool. lv.
- Petalomonas sexlobata*, Basle, KLEBS, p. 383, pl. xiv, figg. 19, a, b, Z. wiss. Zool. lv, n. sp.
- Phyllomitus amylophagus*, Basle, KLEBS, p. 321, pl. xiv, figg. 6 a-e, Z. wiss. Zool. lv, n. sp.
- Phyllomonas*, n. g., with *P. contorta*, n. sp., Basle, KLEBS, p. 305, pl. xiii, figg. 11 a-d, Z. wiss. Zool. lv.
- Pyronympha flagellata*, parasitic in *Termes lucifugus*, GRASSI, p. 36, Atti Acc. Pontif. Lincei (5) i, n. sp.
- Rhynchomonas*, n. g., with *R. nasuta*, Stokes, n. sp., Basle, p. 320, pl. xiv, figg. 7 a-d; KLEBS, Z. wiss. Zool. lv.
- Spironema*, n. g., with *S. multiciliatum*, n. sp., Basle; KLEBS, p. 350, pl. xvi, figg. 9 a-c, Z. wiss. Zool. lv.
- Stephanoon*, n. g., with *S. askenasi*, Melbourne, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv.
- Streptomonas*, n. g., p. 307, with *S. cordata*, Perty, n. sp., Basle, p. 307, pl. xiii, figg. 10 a, b; KLEBS, Z. wiss. Zool. lv.
- Thylakomonas*, n. g., with *T. compressa*, n. sp., Sydney, SCHEWIAKOFF, p. 550, Verh. Ver. Heidelb. (n.s.) iv.
- Trepomonas rotans*, p. 349, pl. xvi, figg. 4 a-c, *steinii*, p. 349, figg. 5 a-d, Basle, KLEBS, Z. wiss. Zool. lv, n. spp.
- Trigonomonas*, n. g., with *T. compressa*, n. sp., Basle, KLEBS, p. 330, pl. xv, figg. 5 a-g, Z. wiss. Zool. lv.
- Urophagus*, n. g., with *U. rostratus*, Stein, n. sp., Basle, p. 341, KLEBS, Z. wiss. Zool. lv.
- Xanthodiscus*, n. g., with *X. vacillans*, n. sp., Gippsland, Victoria, SCHEWIAKOFF, p. 551, Verh. Ver. Heidelb. (n.s.) iv.

### Class 3.—DINOFLAGELLATA.

- Glenodinium uliginosum*, Brennet, in Baden, p. 64, pl. iii, fig. 16, *neglectum*, Baden, p. 65, pl. iii, fig. 17, *cornifax*, p. 66, pl. iii, fig. 18, SCHILLING (134); *G. edax*, Basle, pp. 206 & 207, pl. x, figg. 23 & 24, SCHILLING, Ber. Deutsch. Bot. Ges. ix : n. spp.
- Gymnodinium palustre*, p. 58, pl. iii, fig. 11, *carinatum*, p. 59, fig. 12, *paradoxum*, p. 59, fig. 13, *hyalinum*, p. 60, fig. 14, *pusillum*, p. 60, fig. 15, SCHILLING (134), n. spp.

### Class 5.—CILIATA.

- Astylozoon pyriforme*, New Zealand, SCHEWIAKOFF, p. 561, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Balantiophorus elongatus*, Gray's Peak (8700 feet) in Colorado, p. 558, *bursaria*, Bali I., p. 558, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv, n. spp.
- Blepharostoma*, n. g., with *B. glaucoma*, n. sp., Sydney; SCHEWIAKOFF, p. 554, Verh. Ver. Heidelb. (n.s.) iv.

- Codonella radix*, Lagoons of Venice, IMHOF, p. 4, *Neptunia*, i, n. sp.
- Cranotheridium*, n. g., with *C. teniatum*, n. sp., New Zealand, SCHEWIAKOFF, p. 554, Verh. Ver. Heidelb. (n.s.), iv.
- Dichilum*, n. g., with *D. cuneiforme*, n. sp., Sydney, SCHEWIAKOFF, p. 556, Verh. Ver. Heidelb. (n.s.), iv.
- Glaucoma setosa*, p. 554, *reniformis*, p. 555, Sydney, *colpidium*, New Zealand, p. 555, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.), iv, n. spp.
- Holophrya simplex*, Oahu and Hawaii, SCHEWIAKOFF, p. 553, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Ichthyophthirius cryptostomus*, Plön, Holstein, ZACHARIAS, (164) p. 289, pl. i, n. sp.
- Meseres*, n. g., *cordiformis*, *M. stentor*, n. spp., New Zealand, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv.
- Monochilum*, n. g., with *M. frontatum*, n. sp., Oahu, SCHEWIAKOFF, p. 557, Verh. Ver. Heidelb. (n.s.) iv.
- Plagiocampa*, n. g., with *P. mutabile*, n. sp., Sydney, SCHEWIAKOFF, p. 557, Verh. Ver. Heidelb. (n.s.) iv.
- Rhabdostyla arenaria*, from *Synapta adhærens*, Roscoff, CUÉNOT, Rev. Biol. iii, p. 290, pl. v, fig. 2, n. sp.<sup>1</sup>
- Stegochilum*, n. g., with *S. fusiforme*, n. sp., Taupo Lake, N. Z., SCHEWIAKOFF, p. 556, Verh. Ver. Heidelb. (n.s.) iv.
- Strobilidium*, n. g., with *S. adhærens*, n. sp., New Zealand, SCHEWIAKOFF, p. 559, Verh. Ver. Heidelb. (n.s.) iv.
- Tetrastyla*, n. g., with *T. oblonga*, n. sp., New Zealand, SCHEWIAKOFF, p. 561, Verh. Ver. Heidelb. (n.s.) iv.
- Thylakidium*, n. g., with *T. truncatum*, n. sp., Sydney, SCHEWIAKOFF, p. 559, Verh. Ver. Heidelb. (n.s.) iv.
- Trichodina synaptæ*, p. 289, pl. v, fig. 1, *antedonis*, p. 290, fig. 2, both from *Synapta adhærens*, Roscoff, CUÉNOT, Rev. Biol. iii, n. spp.
- Uronema ovale*, Sydney, SCHEWIAKOFF, p. 556, Verh. Ver. Heidelb. (n.s.) iv, n. sp.
- Urotricha furcata*, Oahu, p. 553, *globosa*, New Zealand, p. 553, SCHEWIAKOFF, Verh. Ver. Heidelb. (n.s.) iv, n. spp.
- Vorticella amphiuræ*, fig. 4, from *Amphiura squamata*, Naples, CUÉNOT, p. 292, pl. v, Rev. Biol. iii, n. sp.

## INCERTÆ SEDIS.

- Limnophrya elegans*, ZACHARIAS, Zool. Anz. xv, p. 459, n. sp. [? also n. g.] not described.
- Neusina*, n. g., with *N. agassizi*, n. sp., from the American Tropical Pacific; GÖES, Bull. Mus. C. Z. xxiii, p. 195. He supposes it to be an arenaceous Foraminifer; but as the description and illustration of this form are almost identical with those given by HÆCKEL for *Stannophyllum zonarium*, one of his deep-sea *Keratosa*, we have to await further research, before assigning to this species a definite place in the system.

# INDEX TO NAMES

OF

## NEW OR NOT PREVIOUSLY RECORDED GENERA AND SUBGENERA

MENTIONED IN VOLUME XXIX,

INCLUDING NEW NAMES FOR GENERA PREVIOUSLY ESTABLISHED.\*

- 
- |   |  |
|---|--|
| Abantis, <i>Fairmaire</i> , Ins. 133                  | Actinoxia, <i>Simon</i> , Arachn. 26                   |
| Ablabophis, <i>Boulenger</i> , Rept. 28               | Adeloides, <i>Warren</i> , Ins. 274                    |
| Abrachius, <i>Roelofs</i> , Ins. 146                  | Adelphomyia, <i>Bergroth</i> , Ins. 285                |
| Abriba, <i>Kirby</i> , Ins. 226                       | Adixoa, <i>Hampson</i> , Ins. 228                      |
| Abuzaida, <i>Keyserling</i> , Arachn. 21              | Admetula, <i>Cossmann</i> , Moll. 72                   |
| Acanthogobio, <i>Herzenstein</i> , Pisces 27          | Æbutina, <i>Simon</i> , Arachn. 32                     |
| Acanthomyrmex, <i>Emery</i> , Ins. 196                | Ælianus, <i>Jacoby</i> , Ins. 171                      |
| Acanthoprion, <i>Pictet and Saussure</i> , Ins. 327   | Æmilia, <i>Kirby</i> , Ins. 229                        |
| Acanthosphinx, <i>Aurivillius</i> , Ins. 226          | Aeromyrma, <i>Forel</i> , Ins. 196                     |
| Achætoneura, <i>Brauer and Bergenstamm</i> , Ins. 299 | Aeronautes, <i>Hartert</i> , Aves 44                   |
| Achelura, <i>Kirby</i> , Ins. 229                     | Aeschrodomus, <i>Pilsbry</i> , Moll. 63                |
| Achlæna, <i>Karsch</i> , Ins. 326                     | Agada, <i>Fairmaire</i> , Ins. 160                     |
| Achrysis, <i>Sémenow</i> , Ins. 201                   | Agastillus, <i>Reitter</i> , Ins. 91                   |
| Aciagrion, <i>Selys</i> , Ins. 322                    | Agathostola, <i>Simon</i> , Arachn. 26                 |
| Acinopterus, <i>Duzee</i> , Ins. 315                  | Aglaops, <i>Warren</i> , Ins. 274                      |
| Acrocœlum, <i>Cossmann</i> , Moll. 76                 | Ahlia, <i>Jordan and Davis</i> , Pisces 31             |
| Acrophylictis, <i>Cossmann</i> , Moll. 78             | Aigialosaurus, <i>Gorjanovic-Kramberger</i> , Rept. 25 |
| Acrostigma, <i>Emery</i> , Ins. 83                    | Ailuravus, <i>Rütimeyer</i> , Mamm. 31                 |
| Acrotrema, <i>Cossmann</i> , Moll. 69                 | Aleurodicus, <i>Douglas and Morgan</i> , Ins. 317      |
| Actenioides, <i>Warren</i> , Ins. 274                 | Allomorpha, <i>Jacoby</i> , Ins. 171                   |
| Actinodactylus, <i>Haswell</i> , Vermes 66            | Alophogaster, <i>Hampson</i> , Ins. 230                |
|   | Alsomyia, <i>Brauer and Bergenstamm</i> , Ins. 298     |

---

\* The total number of names in this Index is 1520, distributed as follows:—*Mammalia*, 31; *Aves*, 37; *Reptilia and Batrachia*, 44; *Pisces*, 34; *Tunicata*, 3; *Mollusca*, 145; *Brachiopoda*, 27; *Bryozoa*, 2; *Crustacea*, 37; *Arachnida*, 120; *Myriopoda*, 2; *Insecta*, 916; *Echinodermata*, 7; *Vermes*, 42; *Cœlenterata*, 3; *Spongiæ*, 19; *Protozoa*, 51. The corresponding total last year was 1399, and ten years ago, in 1882, 1015.

- Alsopsyche, *Brauer and Bergenstamm*, Ins. 298  
 Amalocichla, *De Vis*, Aves 59  
 Amaurocichla, *Sharpe*, Aves 59  
 Ambigatus, *Fairmaire*, Ins. 134  
 Amelora, *Meyrick*, Ins. 262  
 Ametrosomus, *Tepper*, Ins. 327  
 Ammospermophilus, *Merrill*, Mamm. 34  
 Amphichæta, *Kallstenius*, Vermes 48  
 Amphilochooides, *Sars*, Crust. 25  
 Amphithemis, *Selys*, Ins. 322  
 Amplogladius, *Cossmann*, Moll. 75  
 Anagonia, *Brauer and Bergenstamm*, Ins. 299  
 Anamastax, *Brauer and Bergenstamm*, Ins. 299  
 Anapas, *Bergendal*, Vermes 85  
 Anaptycha, *Brunner*, Ins. 325  
 Anartomorpha, *Alphéraky*, Ins. 251  
 Anaspilus, *Kolbe*, Ins. 119  
 Anatinomma, *Bates*, Ins. 160  
 Anaxidia, *Swinhoe*, Ins. 230  
 Andrimus, *Casey*, Ins. 140  
 Anelaphinis, *Kolbe*, Ins. 119  
 Anelasma, *Cossmann*, Moll. 67  
 Anegmena, *Brauer and Bergenstamm*, Ins. 301  
 Anephilus, *Faust*, Ins. 146  
 Aneuretus, *Emery*, Ins. 196  
 Aneurychilus, *Cossmann*, Moll. 75  
 Angularia, *Woehrmann and Koken*, Moll. 76  
 Anhibernia, *Staudinger*, Ins. 262  
 Annadrilus, *Horst*, Vermes 48  
 Anodonthyla, *Müller*, Rept. 38  
 Anoedopoda, *Karsch*, Ins. 327  
 Anomolocaris, *Whiteaves*, Crust. 29  
 Anomostictis, *Warren*, Ins. 274  
 Antha, *Staudinger*, Ins. 251  
 Anthiphula, *Jacoby*, Ins. 171  
 Anthocoptes, *Nalepa*, Arachn. 37  
 Anthocrypta, *Warren*, Ins. 274  
 Anthrenoptera, *Swinhoe*, Ins. 228  
 Anthyria, *Swinhoe*, Ins. 263  
 Anticypella, *Meyrick*, Ins. 263  
 Aon, *Neumoegen*, Ins. 230  
 Apatospongia, *Marshall*, Spong. 20  
 Aphanesthes, *Kolbe*, Ins. 119  
 Aphanolimnas, *Sharpe*, Aves 30  
 Aphrogeneia, *Gumpfenberg*, Ins. 263  
 Apiomidas, *Coquillett*, Ins. 288  
 Apiotoma, *Cossmann*, Moll. 71  
 Aplographe, *Warren*, Ins. 274  
 Aporoctena, *Meyrick*, Ins. 263  
 Aporozoum, *Germain*, Ins. 107  
 Apostichus, *Simon*, Arach. 26  
 Apotomogonius, *Montandon*, Ins. 303  
 Apotrepus, *Casey*, Ins. 147  
 Apteronomus, *Tepper*, Ins. 328  
 Apteroscirtus, *Karsch*, Ins. 328  
 Aræocera, *Hampson*, Ins. 230  
 Aræogyia, *Hampson*, Ins. 230  
 Archæopneustes, *Gregory*, Ech. 11  
 Archæotrogon, *Milne-Edwards*, Aves 46  
 Archondesa, *Moore*, Ins. 219  
 Arenoxenus, *Bates*, Ins. 91  
 Argopistoides, *Jacoby*, Ins. 172  
 Argyrocheila, *Staudinger*, Ins. 221  
 Argyrocottus, *Herzenstein*, Pisces 22  
 Argyrophylax, *Brauer and Bergenstamm*, Ins. 299  
 Ariagona, *Krauss*, Ins. 328  
 Arietellus, *Giesbrecht*, Crust. 30  
 Aristolebia, *Bates*, Ins. 91  
 Arminda, *Krauss*, Ins. 331  
 Arotros, *Schaus*, Ins. 231  
 Arrenopus, *Brauer and Bergenstamm*, Ins. 300  
 Arrhinidia, *Brauer and Bergenstamm*, Ins. 301  
 Arsinotus, *Berg*, Ins. 311  
 Artemidora, *Meyrick*, Ins. 263  
 Arthroglæna, *Bergendal*, Vermes 86  
 Artiora, *Meyrick*, Ins. 263  
 Artobius, *Winge*, Mamm. 27  
 Aschistophleps, *Hampson*, Ins. 228  
 Asmonax, *Gorham*, Ins. 182  
 Aspatha, *Sharpe*, Aves 43  
 Astræosmilia, *Ortmann*, Coel. 13  
 Astralites, *Whiteaves*, Moll. 88  
 Astrapephora, *Alphéraky*, Ins. 263  
 Atasca, *Swinhoe*, Ins. 231  
 Atelolathys, *Simon*, Arachn. 19  
 Ateuchetus, *Bedel*, Ins. 112  
 Atomophora, *Alphéraky*, Ins. 263  
 Atrochus, *Wierzejski*, Vermes 86  
 Atropharista, *Townsend*, Ins. 294  
 Atrophopopus, *Townsend*, Ins. 294  
 Aucheromyia, *Brauer and Bergenstamm*, Ins. 301  
 Autareus, *Sema*, Ins. 169  
 Autocosmia, *Warren*, Ins. 274  
 Autolethrus, *Semenow*, Ins. 112  
 Auximus, *Simon*, Arachn. 19  
 Aventina, *Staudinger*, Ins. 252  
 Aventiola, *Staudinger*, Ins. 252  
 Avocettina, *Jordan and Davis*, Pisces 31  
 Avus, *Ortmann*, Crust. 22

- Axestoleus, *Bates*, Ins. 160  
 Aysha, *Keyserling*, Arachn. 21  
 Azarelius, *Fairmaire*, Ins. 134  
 Azygophleps, *Hampson*, Ins. 232
- Bactromyia, *Brauer and Bergenstamm*, Ins. 298  
 Bactrotheca, *Novák*, Moll. 70  
 Baglivia, *Brusina*, Moll. 78  
 Barroisella, *Hall and Clarke*, Brach. 5  
 Basenius, *Kolbe*, Ins. 169  
 Bathippus, *Forst*, Arachn. 15  
 Bathycranium, *Strobl*, Ins. 290  
 Bathymedon, *Sars*, Crust. 26  
 Batodon, *Marsh*, Mamm. 53  
 Bellota, *Peckham*, Arachn. 15  
 Benthobia, *Dall*, Moll. 72  
 Benthonella, *Dall*, Moll. 78  
 Bessophora, *Meyrick*, Ins. 263  
 Bifidoscala, *Cossmann*, Moll. 83  
 Billingsella, *Hall and Clarke*, Brach. 6  
 Bindax, *Thorell*, Arachn. 15  
 Bipalpus, *Wierzejski*, Vermes 86  
 Blanchardia, *Solger*, Prot. 28  
 Blaptocampus, *Thomson*, Ins. 202  
 Blenniophidium, *Boulenger*, Pisces 23  
 Blepharidopsis, *Brauer and Bergenstamm*, Ins. 298  
 Blepharostoma, *Schewiakoff*, Prot. 31  
 Blepharucha, *Warren*, Ins. 274  
 Bocus, *Peckham*, Arachn. 15  
 Bolbodimyia, *Bigot*, Ins. 236  
 Bolivinopsis, *Jakowlew*, Prot. 19  
 Bolomyia, *Brauer and Bergenstamm*, Ins. 299  
 Bonatea, *Druce*, Ins. 264  
 Boophilus, *Curtice*, Arachn. 37  
 Borophagus, *Cope*, Mamm. 29  
 Bothriocyrtum, *Simon*, Arachn. 26  
 Bothriotænia, *Railliet*, Vermes 64  
 Brachyceræa, *Röder*, Ins. 293  
 Brachychalcinus, *Boulenger*, Pisces 28  
 Brachycœlia, *Meade*, Ins. 294  
 Brachymylus, *Woodward*, Pisces 35  
 Brachypelma, *Simon*, Arachn. 27  
 Bramus, *Pomel*, Mamm. 35  
 Branchiura, *Beddard*, Vermes 48  
 Bremeria, *Alphéraky*, Ins. 232  
 Brochopeplus, *Pictet and Saussure*, Ins. 328  
 Bryodrilus, *Ude*, Vermes 48  
 Bryophilina, *Staudinger*, Ins. 252  
 Bubastodes, *Blackburn*, Ins. 123
- Bucolinus, *Blackburn*, Ins. 183  
 Bulimaetæon, *Cossmann*, Moll. 69  
 Buttikoferia, *Roelofs*, Ins. 148  
 Byrrhomorpha, *Blackburn*, Ins. 114
- Caddo, *Banks*, Arachn. 34  
 Cæcaria, *Floericke*, Vermes 48  
 Calapnita, *Simon*, Arachn. 25  
 Caletes, *Redtenbacher*, Ins. 331  
 Callarge, *Leech*, Ins. 219  
 Callartona, *Hampson*, Ins. 233  
 Calleva, *Simon*, Arachn. 19  
 Callipareius, *Senna*, Ins. 169  
 Calliphona, *Krauss*, Ins. 328  
 Callosila, *Saussure*, Ins. 189  
 Callotaria, *Palmer*, Mamm. 30  
 Calocerinus, *Howard*, Ins. 206  
 Calybia, *Kirby*, Ins. 233  
 Camerania, *Giglio-Tos*, Ins. 290  
 Camptochilus, *Hampson*, Ins. 233  
 Camptomastix, *Warren*, Ins. 274  
 Camptostichomma, *Karsch*, Arachn. 14  
 Canimartes, *Cope*, Mamm. 30  
 Canistes, *Casey*, Ins. 143  
 Capnodes, *Rostock*, Ins. 321  
 Carcinodon, *Scott*, Mamm. 32  
 Carcinopisthius, *Kolbe*, Ins. 169  
 Carphonotus, *Casey*, Ins. 148  
 Carrhotus, *Thorell*, Arachn. 15  
 Cassena, *Weise*, Ins. 172  
 Catachaeta, *Brauer and Bergenstamm*, Ins. 298  
 Catagonia, *Brauer and Bergenstamm*, Ins. 299  
 Catapaguroides, *Edwards and Bouvier*, Crust. 21  
 Catapastus, *Casey*, Ins. 148  
 Cataponus, *Desbrochers*, Ins. 148  
 Catargynnis, *Röder*, Ins. 219  
 Cenchromorphus, *Fairmaire*, Ins. 170  
 Centrinites, *Casey*, Ins. 149  
 Centrinogyna, *Casey*, Ins. 149  
 Centrinopus, *Casey*, Ins. 149  
 Centrodontus, *Goding*, Ins. 315  
 Cephis, *Ragonot*, Ins. 274  
 Cerania, *Weise*, Ins. 172  
 Ceratobothrium, *Monticelli*, Vermes 64  
 Ceratoconcha, *Gorjanovic-Kramberger*, Moll. 91  
 Ceratocorema, *Hampson*, Ins. 228  
 Ceratonema, *Hampson*, Ins. 233  
 Ceratotheca, *Novák*, Moll. 70  
 Cestophorus, *Faust*, Ins. 149  
 Chætodemoticus, *Brauer and Bergenstamm*, Ins. 301

- Chaetogædia, *Brauer and Bergenstamm*, Ins. 299  
 Chaetoglossa, *Townsend*, Ins. 294  
 Chaetomyia, *Brauer and Bergenstamm*, Ins. 298  
 Chaetophthalmus, *Brauer and Bergenstamm*, Ins. 300  
 Chaetoprocta, *Brauer and Bergenstamm*, Ins. 299  
 Chalcinopelecus, *Holmberg*, Pisces 29  
 Chalcocelis, *Hampson*, Ins. 233  
 Chaleponotus, *Casey*, Ins. 149  
 Chalioides, *Hampson*, Ins. 233  
 Chamops, *Marsh*, Rept. 23  
 Chaperina, *Mocquard*, Rept. 38  
 Chara, *Staudinger*, Ins. 253  
 Characta, *Redtenbacher*, Ins. 328  
 Charisia, *Champion*, Ins. 161  
 Cheloctonus, *Pocock*, Arachn. 14  
 Chenuala, *Swinhoe*, Ins. 233  
 Chevallieria, *Cossmann*, Moll. 78  
 Chilobrachys, *Karsch*, Arachn. 27  
 Chipeta, *Hulst*, Ins. 274  
 Chiridius, *Giesbrecht*, Crust. 30  
 Chirostylus, *Ortmann*, Crust. 20  
 Chlæniotenus, *Bates*, Ins. 92  
 Chlamys, *Beneden*, Crust. 30  
 Chlidonoptera, *Karsch*, Ins. 326  
 Chloracris, *Pictet and Saussure*, Ins. 328  
 Chlorampulex, *Saussure*, Ins. 190  
 Chlorochropsis, *Rothschild*, Ins. 214  
 Chlorotettix, *Duzee*, Ins. 315  
 Chlorotribonia, *Pictet and Saussure*, Ins. 328  
 Chonopectus, *Hall and Clarke*, Brach. 6  
 Chonotrophia, *Hall and Clarke*, Brach. 6  
 Choranesa, *Moore*, Ins. 219  
 Choristoneura, *Rübsaamen*, Ins. 284  
 Choristostigma, *Warren*, Ins. 275  
 Christiania, *Hall and Clarke*, Brach. 6  
 Chrotoma, *Casey*, Ins. 161  
 Chrysamœba, *Klebs*, Prot. 30  
 Chrysartona, *Swinhoe*, Ins. 234  
 Chrysilla, *Thorell*, Arachn. 15  
 Chrysococcus, *Klebs*, Prot. 30  
 Chrysotenus, *Meyrick*, Ins. 264  
 Chrysodasia, *Reuter*, Ins. 311  
 Cirsochilus, *Cossmann*, Moll. 85  
 Cirsope, *Cossmann*, Moll. 77  
 Cladocroce, *Topsent*, Spong. 20  
 Clænodon, *Scott*, Mamm. 31  
 Claudia, *Hartert*, Aves 44  
 Clavipalpula, *Staudinger*, Ins. 253  
 Cleionychia, *Ulrich*, Moll. 94  
 Cleonidius, *Casey*, Ins. 149  
 Clistomorpha, *Townsend*, Ins. 294  
 Cnephaliodes, *Brauer and Bergenstamm*, Ins. 299  
 Cnephidia, *Ragonot*, Ins. 275  
 Cnidia, *Gumppenberg*, Ins. 265  
 Codiosoma, *Kirby*, Ins. 234  
 Coleolissus, *Bates*, Ins. 92  
 Colomyia, *Kieffer*, Ins. 284  
 Columbellisipho, *Cossmann*, Moll. 73  
 Columbia, *Eigenmann*, Pisces 30  
 Coniophis, *Marsh*, Rept. 30  
 Conogaster, *Brauer and Bergenstamm*, Ins. 298  
 Conosara, *Meyrick*, Ins. 265  
 Conradtia, *Kolbe*, Ins. 119  
 Copa, *Weise*, Ins. 173  
 Cophixalus, *Bettger*, Rept. 38  
 Coppingeria, *Haswell*, Vermes 45  
 Coptochetus, *Cossmann*, Moll. 73  
 Coracocephalus, *Mik*, Ins. 290  
 Cormopus, *Kolbe*, Ins. 169  
 Cornucaprina, *Futterer*, Moll. 91  
 Coronimyia, *Townsend*, Ins. 294  
 Corynotrichius, *Kolbe*, Ins. 119  
 Cosmoceon, *Warren*, Ins. 275  
 Cosmodesmus, *Haase*, Ins. 211  
 Cossulinus, *Kirby*, Ins. 234  
 Cotylogaster, *Monticelli*, Vermes 67  
 Cotyloplana, *Spencer*, Vermes 71  
 Cranotheridium, *Scheviakoff*, Prot. 32  
 Cratorrhagus, *Simon*, Arachn. 27  
 Crecoides, *Shufeldt*, Aves 30  
 Cremnophila, *Ragonot*, Ins. 275  
 Crenigomphus, *Selys*, Ins. 323  
 Crenilabium, *Cossmann*, Moll. 69  
 Crinocraspeda, *Hampson*, Ins. 235  
 Criomacha, *Meyrick*, Ins. 265  
 Crocomela, *Kirby*, Ins. 235  
 Crommium, *Cossmann*, Moll. 82  
 Crossiura, *Nicéville*, Ins. 225  
 Cryptomeigenia, *Brauer and Bergenstamm*, Ins. 298  
 Cryptopone, *Emery*, Ins. 198  
 Ctenagenia, *Saussure*, Ins. 190  
 Ctenolobus, *Desbrochers*, Ins. 150  
 Ctenophorocera, *Brauer and Bergenstamm*, Ins. 299  
 Curvatula, *Staudinger*, Ins. 253  
 Cyanoplax, *Pilsbry*, Moll. 88  
 Cyclocranium, *Poll*, Ins. 162  
 Cyclodostomia, *Sacco*, Moll. 83  
 Cyclomias, *Desbrochers*, Ins. 150  
 Cyclopteroides, *Garman*, Pisces 22  
 Cyclosattus, *Casey*, Ins. 135  
 Cycloscymnus, *Blackburn*, Ins. 183

- Cyclotynaspis*, *Montandon*, Ins. 308  
*Cylindrococcus*, *Maskell*, Ins. 318  
*Cylindromus*, *Aurivillius*, Ins. 150  
*Cylloproctus*, *Faust*, Ins. 150  
*Cyniscella*, *Cossmann*, Moll. 85  
*Cyphotarsis*, *Jacoby*, Ins. 174  
*Cystiphora*, *Kieffer*, Ins. 284  
  
*Dactylophysus*, *Fleutiaux*, Ins. 127  
*Dactylopteryx*, *Karsch*, Ins. 326  
*Dactylorhyncha*, *Hampson*, Ins. 235  
*Dæochæta*, *Townsend*, Ins. 294  
*Dalium*, *Dall*, Moll. 82  
*Dalmanella*, *Hall and Clarke*, Brach. 6  
*Dalterus*, *Fairmaire*, Ins. 162  
*Daramus*, *Fairmaire*, Ins. 162  
*Dasyphleps*, *Karsch*, Ins. 328  
*Dasypteroma*, *Staudinger*, Ins. 265  
*Delagrangæus*, *Pic*, Ins. 162  
*Deltopecten*, *Jack and Etheridge*, Moll. 94  
*Dendrophleps*, *Hampson*, Ins. 235  
*Dermatæstrus*, *Brauer*, Ins. 293  
*Descanso*, *Peckham*, Arachn. 15  
*Desmoglyptus*, *Casey*, Ins. 150  
*Desvoidia*, *Meade*, Ins. 294  
*Dexiophana*, *Brauer and Bergenstamm*, Ins. 300  
*Diame*, *Warren*, Ins. 275  
*Diaglyptus*, *Pilsbry*, Moll. 63  
*Dialytostoma*, *Cossmann*, Moll. 82  
*Diamenocrinus*, *Oehlert*, Ech. 19  
*Diaphlebus*, *Karsch*, Ins. 328  
*Diaphorapteryx*, *Forbes*, Aves 30  
*Diaphorus*, *Faust*, Ins. 150  
*Diastrophilus*, *Faust*, Ins. 150  
*Dibolocelus*, *Bedel*, Ins. 100  
*Dichelomyia*, *Rübsaamen*, Ins. 284  
*Dichilum*, *Schewiakoff*, Prot. 32  
*Dichotis*, *Warren*, Ins. 275  
*Dicloniscus*, *Cope*, Rept. 24  
*Dicranopsyra*, *Dohrn*, Ins. 328  
*Dicranotænia*, *Railliet*, Vermes 64  
*Didymostoma*, *Warren*, Ins. 275  
*Dillwynella*, *Dall*, Moll. 85  
*Dimeropus*, *Cope*, Rept. 24  
*Dimorphomyrmex*, *André*, Ins. 198  
*Dinarella*, *Bittner*, Brach. 8  
*Dinocleus*, *Casey*, Ins. 151  
*Dinorthis*, *Hall and Clarke*, Brach. 6  
*Dionana*, *Moore*, Ins. 219  
*Diops*, *Bergendal*, Vermes 86  
*Dioprophorus*, *Faust*, Ins. 151  
*Diphaulacosoma*, *Jacoby*, Ins. 174  
*Diploa*, *Kolbe*, Ins. 120  
  
*Diptychus*, *Cossmann*, Moll. 83  
*Discalma*, *Meyrick*, Ins. 265  
*Dischiropus*, *Karsch*, Arachn. 15  
*Discinopsis*, *Hall and Clarke*, Brach. 5  
*Distantella*, *Saussure*, Ins. 202  
*Ditriænella*, *Hinde and Holmes*, Spong. 17  
*Dixoa*, *Hampson*, Ins. 236  
*Dolichostethus*, *Kolbe*, Ins. 120  
*Doliodus*, *Traquair*, Pisces 37  
*Dolothymus*, *Thorell*, Arachn. 25  
*Dorachosa*, *Distant*, Ins. 313  
*Drepanidotænia*, *Railliet*, Vermes 64  
*Drepanula*, *Röber*, Ins. 221  
*Drexelia*, *McCook*, Arachn. 22  
*Drieschia*, *Michaelsen*, Vermes 45  
*Dromicodryas*, *Boulenger*, Rept. 27  
*Drucea*, *Kirby*, Ins. 236  
*Drymoptila*, *Meyrick*, Ins. 265  
*Dynamopterus*, *Milne - Edwards*, Aves 46  
*Dyscerus*, *Faust*, Ins. 151  
*Dystrichothorax*, *Blackburn*, Ins. 93  
  
*Eccopteroma*, *Staudinger*, Ins. 254  
*Eccoptometopus*, *Péringuey*, Ins. 100  
*Echinocotyle*, *Rosseter*, Vermes 64  
*Echnomolauus*, *Bates*, Ins. 93  
*Echtrusia*, *Lefèvre*, Ins. 175  
*Ectatostica*, *Simon*, Arachn. 23  
*Ectinochilus*, *Cossmann*, Moll. 75  
*Ectophylla*, *Allen*, Mamm. 27  
*Ectorisma*, *Tate*, Moll. 90  
*Ectrocta*, *Hampson*, Ins. 236  
*Eilica*, *Keyserling*, Arachn. 20  
*Elæoptera*, *Redtenbacher*, Ins. 328  
*Elaphronemius*, *Milne - Edwards*, Aves 29  
*Elasmocnema*, *Karsch*, Ins. 306  
*Elginia*, *Newton*, Rept. 35  
*Ellipsodon*, *Scott*, Mamm. 31  
*Elsa*, *Honrath*, Ins. 214  
*Embolocephalus*, *Randolph*, Vermes 49  
*Emertonius*, *Peckham*, Arachn. 16  
*Emphanopteryx*, *Townsend*, Ins. 295  
*Emporomyia*, *Brauer and Bergenstamm*, Ins. 300  
*Encaumaptera*, *Hampson*, Ins. 236  
*Encentra*, *Redtenbacher*, Ins. 329  
*Encyocrates*, *Simon*, Arachn. 27  
*Endopachychilus*, *Cossmann*, Moll. 73

- Enicoderus, *Péringuey*, Ins. 151  
 Entomella, *Cossmann*, Moll. 87  
 Entomope, *Cossmann*, Moll. 77  
 Eonius, *Tepper*, Ins. 329  
 Eopleurotoma, *Cossmann*, Moll. 71  
 Epalxis, *Cossmann*, Moll. 71  
 Epelyx, *Blackburn*, Ins. 93  
 Ephebopus, *Simon*, Arachn. 27  
 Ephemerioidea, *Hampson*, Ins. 236  
 Ephippithytoidea, *Tepper*, Ins. 329  
 Ephoria, *Meyrick*, Ins. 266  
 Epichriacus, *Scott*, Mamm. 31  
 Epicoiononeus, *Senna*, Ins. 169  
 Epicompsa, *Meyrick*, Ins. 266  
 Epimydia, *Staudinger*, Ins. 236  
 Epineura, *Brauer and Bergenstamm*, Ins. 301  
 Epision, *Stiles*, Vermes 64  
 Epocilla, *Thorell*, Arachn. 16  
 Epocus, *Emery*, Ins. 198  
 Eremocossus, *Hampson*, Ins. 237  
 Eremoxenus, *Sémenow*, Ins. 169  
 Erica, *Peckham*, Arachn. 16  
 Erimacrus, *Benedict*, Crust. 17  
 Eriphioides, *Kirby*, Ins. 237  
 Eristus, *Blackburn*, Ins. 151  
 Erithionyx, *Blackburn*, Ins. 184  
 Erythrandra, *Brauer and Bergenstamm*, Ins. 300  
 Erythrolophus, *Swinhoe*, Ins. 266  
 Erythronychia, *Brauer and Bergenstamm*, Ins. 300  
 Erythrophaia, *Staudinger*, Ins. 254  
 Estrella, *Frenzel*, Prot. 19  
 Encasta, *Dall*, Moll. 85  
 Eucromyia, *Townsend*, Ins. 295  
 Eucirrichthys, *Perugia*, Pisces 28  
 Eucnephalia, *Townsend*, Ins. 295  
 Euctenospila, *Warren*, Ins. 275  
 Eudiplura, *Simon*, Arachn. 27  
 Eudoxazus, *Kolbe*, Ins. 120  
 Eudranes, *Sharp*, Ins. 103  
 Eufischeria, *Brauer and Bergenstamm*, Ins. 300  
 Euglenopsis, *Klebs*, Prot. 30  
 Eulasinus, *Sharp*, Ins. 103  
 Eulasiona, *Townsend*, Ins. 295  
 Eumacronychia, *Townsend*, Ins. 295  
 Eumegalodon, *Brongniart*, Ins. 329  
 Eumelepta, *Jacoby*, Ins. 175  
 Eumera, *Staudinger*, Ins. 267  
 Eumyothyria, *Townsend*, Ins. 295  
 Eunotosaurus, *Seeley*, Rept. 34  
 Eunyssobia, *Casey*, Ins. 151  
 Eupachnoda, *Kolbe*, Ins. 120  
 Eupegylis, *Duvivier*, Ins. 114  
 Euphorocera, *Townsend*, Ins. 295  
 Euponera, *Forel*, Ins. 198  
 Euposaurus, *Lortet*, Rept. 24  
 Eupsychellus, *Rüber*, Ins. 222  
 Eurhinospiza, *Oustalet*, Aves 53  
 Euromioia, *Staudinger*, Ins. 255  
 Euryaptus, *Bates*, Ins. 94  
 Euryetisus, *Garino*, Crust. 17  
 Euscopolia, *Townsend*, Ins. 295  
 Eusphinctus, *Emery*, Ins. 198  
 Eutelesthes, *Kolbe*, Ins. 120  
 Eutettix, *Duze*, Ins. 316  
 Euthyprosopa, *Townsend*, Ins. 295  
 Eversmanella, *Jakowlew*, Ins. 208  
 Exechestoma, *Cossmann*, Moll. 75  
 Exophthalmida, *Faust*, Ins. 152  
 Fanchonia, *Werner*, Rept. 38  
 Felderia, *Kirby*, Ins. 237  
 Feltria, *Kenike*, Arachn. 36  
 Fergana, *Staudinger*, Ins. 267  
 Filholornis, *Milne-Edwards*, Aves 29  
 Fluda, *Peckham*, Arachn. 16  
 Fohlia, *Lohmann*, Tun. 7  
 Folioseris, *Rehberg*, Coel. 13  
 Forelius, *Emery*, Ins. 198  
 Frenchella, *Blackburn*, Ins. 114  
 Frenchia, *Maskell*, Ins. 318  
 Furcillus, *Cope*, Rept. 24  
 Gædiopsis, *Brauer and Bergenstamm*, Ins. 299  
 Galerusoma, *Jacoby*, Ins. 175  
 Gardinia, *Kirby*, Ins. 238  
 Gargantua, *Kirby*, Ins. 227  
 Gasponia, *Fairmaire*, Ins. 163  
 Gastoschiza, *Bergendal*, Vermes 87  
 Gavialinum, *Lortet*, Rept. 32  
 Geikia, *Newton*, Rept. 35  
 Gelotia, *Thorell*, Arachn. 16  
 Gemeneta, *Karsch*, Ins. 331  
 Geosesarma, *De Man*, Crust. 18  
 Geosomus, *Faust*, Ins. 152  
 Geothauma, *Crosse*, Moll. 81  
 Geranopteris, *Milne-Edwards*, Aves 41  
 Ginglymia, *Townsend*, Ins. 295  
 Gitanopsis, *Sars*, Crust. 25  
 Glauconoë, *Warren*, Ins. 276  
 Glaucophana, *Brauer and Bergenstamm*, Ins. 299  
 Glyphidrilus, *Horst*, Vermes 49  
 Glyptobaris, *Casey*, Ins. 152  
 Glyptostyla, *Dall*, Moll. 73  
 Gnopharmia, *Staudinger*, Ins. 267  
 Goë, *Hampson*, Ins. 238  
 Goëtia, *Karsch*, Ins. 329  
 Goldia, *Keyserling*, Arachn. 20

- Gonanticlea, *Swinhoe*, Ins. 267  
 Goniocera, *Brauer and Bergenstamm*, Ins. 299  
 Gonionotophis, *Boulenger*, Rept. 28  
 Goniops, *Aldrich*, Ins. 286  
 Gordiichthys, *Jordan and Davis*, Pisces 31  
 Gordiodrilus, *Beddard*, Vermes 49  
 Gordonia, *Newton*, Rept. 35  
 Gorgonichthys, *Claypole*, Pisces 34  
 Grammostola, *Simon*, Arachn. 27  
 Grandipatula, *Cossmann*, Moll. 62  
 Grantiopsis, *Dendy*, Spong. 16  
 Granulolabium, *Cossmann*, Moll. 75  
 Gravenreuthia, *Karsch*, Ins. 329  
 Grouvelleus, *Guillebeau*, Ins. 106  
 Grumia, *Alphéraky*, Ins. 255  
 Grypnus, *Desbrochers*, Ins. 152  
 Gurna, *Swinhoe*, Ins. 238  
 Guttulidium, *Frenzel*, Prot. 18  
 Gymnodexia, *Brauer and Bergenstamm*, Ins. 300  
 Gymnodiptychus, *Herzenstein*, Pisces 27  
 Gymnolæmus, *Ogilvie-Grant*, Aves 42  
 Gymnoprosopa, *Townsend*, Ins. 295  
 Gymnoscymnus, *Blackburn*, Ins. 184  
 Gynæphila, *Staudinger*, Ins. 260  
 Gytha, *Keyserling*, Arachn. 20  
  
 Hadjina, *Staudinger*, Ins. 255  
 Hadropopillia, *Kratz*, Ins. 118  
 Hadrosticta, *Kratz*, Ins. 120  
 Hallicarnia, *Kirby*, Ins. 238  
 Hallina, *Winchell and Schuchert*, Brach. 8  
 Haloplia, *Snellen*, Ins. 238  
 Handhirschiella, *Montandon*, Ins. 304  
 Haploclastus, *Simon*, Arachn. 27  
 Haplopelma, *Simon*, Arachn. 28  
 Haploscincus, *Cope*, Rept. 24  
 Haporema, *Fairmaire*, Ins. 136  
 Harima, *Moore*, Ins. 219  
 Harmilla, *Aurivillius*, Ins. 217  
 Harpaliscus, *Bates*, Ins. 94  
 Hedleya, *Cox*, Moll. 81  
 Helectrus, *Guillebeau*, Ins. 106  
 Helenoconcha, *Pilsbry*, Moll. 63  
 Heligmomerus, *Simon*, Arachn. 28  
 Heliocausus, *Kohl*, Ins. 191  
 Heliosphærium, *Frenzel*, Prot. 19  
 Hemiaulax, *Bates*, Ins. 94  
 Hemichlænus, *Bates*, Ins. 94  
 Hemiconus, *Cossmann*, Moll. 71  
 Hemimeria, *Saussure*, Ins. 191  
 Hemipimpla, *Saussure*, Ins. 202  
 Hemipleurotoma, *Cossmann*, Moll. 71  
 Hemipodiulus, *Verhoeff*, Myr. 6  
 Hemipogonius, *Saussure*, Ins. 191  
 Hemisalius, *Saussure*, Ins. 191  
 Hemithrixion, *Brauer and Bergenstamm*, Ins. 300  
 Hemyloticus, *Jacoby*, Ins. 176  
 Henschia, *Lethierry*, Ins. 316  
 Hepatica, *Staudinger*, Ins. 255  
 Hephthocara, *Alcock*, Pisces 23  
 Hepialiscus, *Hampson*, Ins. 239  
 Heraëma, *Staudinger*, Ins. 255  
 Herbertella, *Hall and Clarke*, Brach. 6  
 Hermatobates, *Carpenter*, Ins. 309  
 Hermosa, *Peckham*, Arachn. 16  
 Hesperarion, *Simroth*, Moll. 59  
 Hesperobaris, *Casey*, Ins. 152  
 Heteroæcium, *Hincks*, Bry. 4  
 Heterocharmus, *Pocock*, Arachn. 14  
 Heterorthis, *Hall and Clarke*, Brach. 6  
 Heylaertsia, *Hampson*, Ins. 239  
 Hildala, *Swinhoe*, Ins. 239  
 Histia, *Fairmaire*, Ins. 137  
 Hollandia, *Butler*, Ins. 261  
 Holocryptis, *Lucas*, Ins. 256  
 Hologyra, *Woehrmann and Koken*, Moll. 84  
 Holomastigotes, *Grassi*, Prot. 30  
 Homæophleus, *Gahan*, Ins. 163  
 Homalochilus, *Cossmann*, Moll. 86  
 Homœoplacis, *Simon*, Arachn. 28  
 Homoneura, *Wulp*, Ins. 301  
 Homostola, *Simon*, Arachn. 28  
 Hoplacerus, *Jacoby*, Ins. 176  
 Hopliterrhynchus, *Senna*, Ins. 169  
 Hoplopisthius, *Senna*, Ins. 169  
 Hoplozonitis, *Blackburn*, Ins. 144  
 Hordeulima, *Sacco*, Moll. 83  
 Hormambogaster, *Karsch*, Ins. 306  
 Hubrechtia, *Bürger*, Vermes 70  
 Hyaloplagia, *Warren*, Ins. 276  
 Hyalorista, *Warren*, Ins. 276  
 Hydrogamasus, *Berlese*, Arachn. 35  
 Hylaspoides, *Duvivier*, Ins. 176  
 Hymenomaga, *Karsch*, Ins. 304  
 Hypatia, *Kirby*, Ins. 239  
 Hyperephanus, *Senna*, Ins. 169  
 Hyperlophus, *Douglas - Ogilby*, Pisces 30  
 Hyphantospiza, *Reichenow*, Aves 53

- Hyphantrophaga, *Townsend*, Ins. 295  
 Hypochlorosis, *Röber*, Ins. 222  
 Hypocyrema, *Blackburn*, Ins. 184  
 Hypolamprus, *Hampson*, Ins. 239  
 Hypopomyrmex, *Emery*, Ins. 83  
 Hypopus, *Bergendal*, Vermes 87  
 Hypostigmodera, *Blackburn*, Ins. 124  
 Hypotachina, *Brauer and Bergenstamm*, Ins. 299  
 Hypotomorpha, *Rebel*, Ins. 276  
 Hysicorypha, *Krauss*, Ins. 326  
 Hysipleura, *Woehrmann and Koken*, Moll. 76  
 Hypsobia, *Heude*, Moll. 79  
 Hyptiocrinus, *Wachsmuth and Springer*, Ech. 19  
 Hyracops, *Marsh*, Mamm. 39  
 Hysterochrates, *Simon*, Arachn. 28  
  
 Ichneumenoptera, *Hampson*, Ins. 228  
 Ichnotherium, *Pohlig*, Rept. 41  
 Ideobisium, *Balzan*, Arachn. 34  
 Ideoblothrus, *Balzan*, Arachn. 34  
 Idiobates, *Casey*, Ins. 137  
 Idiocrinus, *Wachsmuth and Springer*, Ech. 20.  
 Idicpholis, *Boulenger*, Rept. 29  
 Idiostethus, *Casey*, Ins. 152  
 Idonanton, *Swinhoe*, Ins. 240  
 Ilyophis, *Jordan and Davis*, Pisces 31  
 Iniopsis, *Lydekker*, Mamm. 50  
 Iola, *Peckham*, Arachn. 16  
 Iphidosoma, *Berlese*, Arachn. 35  
 Iphthimorhinus, *Roelofs*, Ins. 152  
 Ischnias, *Berg*, Ins. 311  
 Ischnocryptus, *Kriechbaumer*, Ins. 203  
 Ischnopopillia, *Kraatz*, Ins. 118  
 Isoclerus, *Lewis*, Ins. 131  
 Isomma, *Selys*, Ins. 323  
 Isoplatys, *Montandon*, Ins. 304  
 Ispaterus, *Fairmaire*, Ins. 163  
 Ityocephala, *Redtenbacher*, Ins. 329  
  
 Jænia, *Grassi*, Prot. 30  
 Jermakia, *Jakowlew*, Ins. 209  
 Jheringia, *Keyserling*, Arachn. 25  
 Jothochilus, *Kolbe*, Ins. 120  
 Joyeuxia, *Topsent*, Spong. 21  
  
 Katakia, *Distant*, Ins. 313  
 Kandiana, *Distant*, Ins. 314  
  
 Katosira, *Woehrmann and Koken*, Moll. 76  
 Kayserella, *Hall and Clarke*, Brach. 6  
 Kerrata, *Moore*, Ins. 219  
 Kerria, *Beddard*, Vermes 49  
 Keyserlingella, *Peckham*, Arachn. 16  
 Kirrodesa, *Moore*, Ins. 220  
 Kittlitzia, *Hartlaub*, Aves 30  
 Konbirella, *Duvivier*, Ins. 176  
 Kyrtolitha, *Staudinger*, Ins. 268  
  
 Lachnomma, *Townsend*, Ins. 296  
 Lævidentalium, *Cossmann*, Moll. 89  
 Lagarosia, *Wulp*, Ins. 301  
 Lampropelma, *Simon*, Arachn. 28  
 Lamprophthalma, *Portschinsky*, Ins. 302  
 Larradomorpha, *Stadelmann*, Ins. 206  
 Larropsis, *Patton*, Ins. 191  
 Lasiogaster, *Gahan*, Ins. 163  
 Lasiogma, *Meyrick*, Ins. 268  
 Lasionycta, *Aurivillius*, Ins. 256  
 Latirulus, *Cossmann*, Moll. 73  
 Lembeja, *Distant*, Ins. 313  
 Lepidodexia, *Brauer and Bergenstamm*, Ins. 300  
 Lepidopteris, *Pohlig*, Pisces 32  
 Lepidozona, *Pilsbry*, Moll. 89  
 Leprosicirtus, *Karsch*, Ins. 329  
 Leptella, *Hall and Clarke*, Brach. 6  
 Leptodema, *Carlini*, Ins. 310  
 Leptorrhampus, *Ambrosetti*, Rept. 32  
 Leptostylus, *Faust*, Ins. 153  
 Leptotachina, *Brauer and Bergenstamm*, Ins. 299  
 Leptothrix, *Heylaerts*, Ins. 240  
 Lethrotrypes, *Jacobsohn*, Ins. 112  
 Lethrulus, *Sémenow*, Ins. 112  
 Leucascus, *Dendy*, Spong. 16  
 Leucocythere, *Kaufman*, Crust. 30  
 Leucodrepana, *Hampson*, Ins. 240  
 Leucomyia, *Brauer and Bergenstamm*, Ins. 300  
 Libania, *Thorell*, Arachn. 26  
 Libytherium, *Pomel*, Mamm. 44  
 Limeria, *Staudinger*, Ins. 268  
 Limnophrya, *Zacharias*, Prot. 32  
 Limulina, *Frenzel*, Prot. 18  
 Lindstroemella, *Hall and Clarke*, Brach. 5  
 Linocerochoris, *Karsch*, Ins. 311  
 Linonotus, *Casey*, Ins. 153  
 Liotrichius, *Kolbe*, Ins. 120

- Liparops, *Garman*, Pisces 22  
 Liparopsis, *Hampson*, Ins. 241  
 Litaneutria, *Saussure*, Ins. 326  
 Lithoglyptes, *Aurivillius*, Crust. 32  
 Lithophasia, *Staudinger*, Ins. 256  
 Lithosphærella, *Frenzel*, Prot. 19  
 Litochroides, *Guillebeau*, Ins. 106  
 Lobantale, *Cossmann*, Moll. 89  
 Lobocara, *Bergroth*, Ins. 309  
 Lobostoma, *Fairmaire*, Ins. 107  
 Lochetica, *Kriechbaumer*, Ins. 203  
 Longula, *Staudinger*, Ins. 268  
 Lophosoma, *Swinhoe*, Ins. 241  
 Loxocreon, *Warren*, Ins. 276  
 Loxoptysis, *Cossmann*, Moll. 83  
 Lucernosa, *Antipa*, Cœl. 11  
 Lycognathophis, *Boulenger*, Rept. 28  
 Lycosella, *Thorell*, Arachn. 23  
 Lyctosoma, *Lewis*, Ins. 131  
 Maccoyella, *Jack and Etheridge*, Moll. 94  
 Macrocrampus, *Kirby*, Ins. 241  
 Macrodotomia, *Sacco*, Moll. 83  
 Macrohelodes, *Blackburn*, Ins. 129  
 Macrolabis, *Kieffer*, Ins. 284  
 Macromeigenia, *Brauer and Bergenstamm*, Ins. 298  
 Macrocephalina, *Cossmann*, Moll. 82  
 Macronola, *Kirby*, Ins. 241  
 Macropalpus, *Meunier*, Ins. 296  
 Macropisthodon, *Boulenger*, Rept. 27  
 Macropectra, *Hampson*, Ins. 241  
 Macropophis, *Boulenger*, Rept. 27  
 Macrotrypis, *Hampson*, Ins. 228  
 Macrotrypeta, *Portschinsky*, Ins. 302  
 Madarellus, *Casey*, Ins. 153  
 Magulla, *Simon*, Arachn. 28  
 Maizania, *Bourguignat*, Moll. 81  
 Maltharchus, *Weise*, Ins. 130  
 Mandarella, *Duvivier*, Ins. 177  
 Mandarinia, *Leech*, Ins. 220  
 Marænaspis, *Karsch*, Ins. 310  
 Marconia, *Bourguignat*, Moll. 57  
 Marengo, *Peckham*, Arachn. 17  
 Margineulima, *Cossmann*, Moll. 83  
 Marsupiogaster, *Schewiakoff*, Prot. 30  
 Martella, *Peckham*, Arachn. 17  
 Masiphya, *Brauer and Bergenstamm*, Ins. 298  
 Masipoda, *Brauer and Bergenstamm*, Ins. 299  
 Masistylum, *Brauer*, Ins. 296  
 Mastigella, *Frenzel*, Prot. 18  
 Mastigina, *Frenzel*, Prot. 18  
 Mastigocrinus, *Bather*, Ech. 20  
 Mastigosphæra, *Schewiakoff*, Prot. 30  
 Masupha, *Distant*, Ins. 313  
 Maulia, *Blackburn*, Ins. 164  
 Maupasia, *Schewiakoff*, Prot. 30  
 Maxia, *Kirby*, Ins. 241  
 Mecinonota, *Kratz*, Ins. 121  
 Medoriopsis, *Cossmann*, Moll. 77  
 Megaceramis, *Hampson*, Ins. 241  
 Megalochlora, *Meyrick*, Ins. 269  
 Megametopon, *Alphéraky*, Ins. 269  
 Megatyloma, *Cossmann*, Moll. 87  
 Mekla, *Swinhoe*, Ins. 242  
 Melia, *Neumoegen*, Ins. 242  
 Melichrus, *Brenske*, Ins. 116  
 Mellevillia, *Cossmann*, Moll. 75  
 Melliera, *Saussure*, Ins. 326  
 Merismopteria, *Jack and Etheridge*, Moll. 94  
 Mesa, *Saussure*, Ins. 192  
 Mesarmadillo, *Dollfus*, Crust. 28  
 Meseres, *Schewiakoff*, Prot. 32  
 Mesocetus, *Moreno*, Mamm. 51  
 Mesochæta, *Brauer and Bergenstamm*, Ins. 299  
 Mesocrabro, *Verhoeff*, Ins. 192  
 Mesomycterus, *Cope*, Rept. 24  
 Mesopteryx, *Hutton*, Aves 25  
 Mesothyris, *Warren*, Ins. 276  
 Mesotrypes, *Jacobsohn*, Ins. 112  
 Metabacetus, *Bates*, Ins. 95  
 Metalopha, *Staudinger*, Ins. 257  
 Metapteryx, *De Vis*, Aves 25  
 Metaschalis, *Hampson*, Ins. 242  
 Metopella, *Sars*, Crust. 27  
 Metopodia, *Brauer and Bergenstamm*, Ins. 300  
 Metopotoma, *Casey*, Ins. 154  
 Metosamia, *Druce*, Ins. 242  
 Micraetis, *Warren*, Ins. 276  
 Microbaris, *Casey*, Ins. 154  
 Microclænodon, *Scott*, Mamm. 31  
 Microcrabro, *Saussure*, Ins. 192  
 Microceagris, *Balzan*, Arachn. 34  
 Microcyllus, *Thorell*, Arachn. 32  
 Microjænia, *Grassi*, Prot. 30  
 Micromastix, *Frenzel*, Prot. 18  
 Micromerus, *Guillebeau*, Ins. 106  
 Micromphalina, *Cossmann*, Moll. 82  
 Micromyobia, *Brauer and Bergenstamm*, Ins. 301  
 Microphana, *Brauer and Bergenstamm*, Ins. 299

- Microprion, *Pictet and Saussure*, Ins. 329  
 Microsebus, *Kolbe*, Ins. 169  
 Microtachina, *Mik*, Ins. 296  
 Mictodoca, *Meyrick*, Ins. 269  
 Mikrocodides, *Bergendal*, Vermes 87  
 Mila, *Auricillius*, Ins. 242  
 Milione, *Thorell*, Arachn. 31  
 Mimastroides, *Jacoby*, Ins. 178  
 Mimoschinia, *Warren*, Ins. 276  
 Mimudea, *Warren*, Ins. 276  
 Minthodexia, *Brauer and Bergenstamm*, Ins. 300  
 Mioacris, *Pictet and Saussure*, Ins. 330  
 Miomerocerus, *Karsch*, Ins. 310  
 Mionyx, *Saussure*, Ins. 326  
 Miosaga, *Saussure*, Ins. 330  
 Mnesampela, *Meyrick*, Ins. 269  
 Mobianus, *Giesbrecht*, Crust. 31  
 Mochlotona, *Meyrick*, Ins. 269  
 Monacanthonyx, *Bates*, Ins. 95  
 Monarthropalpus, *Rübsaamen*, Ins. 284  
 Monaster, *Etheridge*, Ech. 16  
 Monaulax, *Nalepa*, Arachn. 38  
 Monochilum, *Schewiakoff*, Prot. 32  
 Monocirsus, *Cossmann*, Moll. 75  
 Monocladum, *Pic*, Ins. 164  
 Monocona, *Warren*, Ins. 276  
 Monoculopsis, *Sars*, Crust. 26  
 Monophyaspsis, *Cope*, Rept. 24  
 Monostola, *Alphéraky*, Ins. 257  
 Monotropia, *Kirby*, Ins. 242  
 Mormonomyia, *Brauer and Bergenstamm*, Ins. 301  
 Musæus, *Thorell*, Arachn. 32  
 Muscopteryx, *Townsend*, Ins. 296  
 Mydrothauma, *Butler*, Ins. 242  
 Myinodes, *Meyrick*, Ins. 269  
 Myiophasia, *Brauer and Bergenstamm*, Ins. 300  
 Myrmoplasta, *Gerstaecker*, Ins. 307  
 Mysticoptera, *Meyrick*, Ins. 269  
 Myxexorista, *Brauer and Bergenstamm*, Ins. 299  
 Myxodexia, *Brauer and Bergenstamm*, Ins. 300  
 Nanochlænus, *Bates*, Ins. 95  
 Narcæus, *Thorell*, Arachn. 32  
 Næarasa, *Staudinger*, Ins. 242  
 Necrastur, *De Vis*, Aves 38  
 Nectochæta, *Marenzeller*, Vermes 46  
 Negalius, *Casey*, Ins. 144  
 Nemacerota, *Hampson*, Ins. 250  
 Nematopagurus, *Edwards and Bouvier*, Crust. 22  
 Nemetis, *Moore*, Ins. 220  
 Nemorilloides, *Brauer and Bergenstamm*, Ins. 299  
 Nemosinus, *Faust*, Ins. 154  
 Neobagrus, *Bellotti*, Pisces 25  
 Neoberlesia, *Berlese*, Arachn. 36  
 Neobubastes, *Blackburn*, Ins. 125  
 Neocalliphora, *Brauer and Bergenstamm*, Ins. 301  
 Neocardia, *Sowerby*, Moll. 92  
 Neoclerus, *Lewis*, Ins. 131  
 Neoctodon, *Bedel*, Ins. 113  
 Neohydnaus, *Gorham*, Ins. 131  
 Neolesbia, *Salvin*, Aves 45  
 Neolythria, *Alphéraky*, Ins. 269  
 Neomintho, *Brauer and Bergenstamm*, Ins. 299  
 Neoteristis, *Meyrick*, Ins. 269  
 Neotocerus, *Duvivier*, Ins. 154  
 Neotractocera, *Townsend*, Ins. 296  
 Neritaria, *Woehrmann and Koken*, Moll. 82  
 Nesace, *Kirby*, Ins. 243  
 Neusina, *Göes*, Prot. 32  
 Newmania, *Swinhoe*, Ins. 243  
 Nicentrus, *Casey*, Ins. 154  
 Nicylla, *Thorell*, Arachn. 17  
 Ninguta, *Moore*, Ins. 220  
 Niphograptæ, *Warren*, Ins. 276  
 Nirina, *Weise*, Ins. 178  
 Nocticola, *Bolivar*, Ins. 325  
 Nodepus, *Gorham*, Ins. 132  
 Norrisella, *Cossmann*, Moll. 86  
 Nossæ, *Kirby*, Ins. 243  
 Notaspis, *Warren*, Ins. 277  
 Noteraula, *Meyrick*, Ins. 279  
 Notobrachypterus, *Blackburn*, Ins. 108  
 Notocetus, *Moreno*, Mamm. 51  
 Notostemma, *Bergendal*, Vermes 87  
 Nuclearella, *Frenzel*, Prot. 19  
 Nuclearina, *Frenzel*, Prot. 19  
 Nydia, *Thorell*, Arachn. 19  
 Nyoma, *Duvivier*, Ins. 165  
 Nyssonotus, *Casey*, Ins. 154  
 Oberthueria, *Kirby*, Ins. 243  
 Oberthuria, *Staudinger*, Ins. 243  
 Ocala, *Hulst*, Ins. 277  
 Oenerogyia, *Staudinger*, Ins. 243  
 Octocella, *Helm*, Bry. 4  
 Octoplasia, *Brenske*, Ins. 116  
 Œcophlœus, *Simon*, Arachn. 28  
 Œdonia, *Kirby*, Ins. 244  
 Œhlertella, *Hall and Clarke*, Brach. 6  
 Œnospila, *Swinhoe*, Ins. 270  
 Ogovia, *Holland*, Ins. 257  
 Ojedana, *Distant*, Ins. 306

- Olenochæta*, *Townsend*, Ins. 296  
*Oligodon*, *Amalitzky*, Moll. 93  
*Oligolochus*, *Casey*, Ins. 154  
*Olisthanella*, *Voigt*, Vermes 72  
*Ollochirus*, *Cope*, Rept. 24  
*Omorphina*, *Alphéraky*, Ins. 257  
*Oncodermus*, *Senna*, Ins. 170  
*Oncopus*, *Cope*, Rept. 24  
*Onychocryptus*, *Karsch*, Arachn. 20  
*Onychora*, *Meyrick*, Ins. 270  
*Oomorphidius*, *Casey*, Ins. 154  
*Oopterinus*, *Casey*, Ins. 154  
*Opetiopteryx*, *Blackburn*, Ins. 154  
*Ophioterresis*, *Bell*, Ech. 17  
*Ophoniscus*, *Bates*, Ins. 96  
*Orcevia*, *Thorell*, Arachn. 17  
*Orinonotus*, *Reuter*, Ins. 311  
*Orna*, *Kirby*, Ins. 244  
*Ornithoconus*, *Pocock*, Arachn. 28  
*Orophila*, *Krauss*, Ins. 330  
*Orphnæcus*, *Simon*, Arachn. 28  
*Orthaulaca*, *Weise*, Ins. 179  
*Orthidium*, *Hall and Clarke*, Brach. 7  
*Orthochilus*, *Cossmann*, Moll. 75  
*Orthoconemus*, *Milne-Edwards*, Aves 30  
*Orthoeraspida*, *Hampson*, Ins. 244  
*Ortholophus*, *Oglivie-Grant*, Aves 42  
*Orthoptychus*, *Futterer*, Moll. 91  
*Orthotheca*, *Novák*, Moll. 70  
*Orthotichia*, *Hall & Clarke*, Brach. 7  
*Otaulax*, *Cossmann*, Moll. 86  
*Otocryptus*, *Candèze*, Ins. 128  
*Otomyrnex*, *Forel*, Ins. 199  
*Oulobophora*, *Staudinger*, Ins. 270  
*Ovengua*, *Distant*, Ins. 307  
*Ovulactæon*, *Dall*, Moll. 69  
*Oxyacrum*, *Cossmann*, Moll. 71  
*Oxygoniola*, *Horn*, Ins. 90  
*Oxyplax*, *Hampson*, Ins. 244  
*Oxypleurites*, *Nalepa*, Arachn. 38  
*Oxyrhabdium*, *Boulenger*, Rept. 28  
*Oxyrdonsaurus*, *Ambrosetti*, Rept. 32  
*Oxytachina*, *Brauer and Bergenstamm*, Ins. 300  
  
*Pachnephoptrus*, *Reitter*, Ins. 179  
*Pachydasys*, *Butler*, Ins. 258  
*Pachygnatha*, *Weise*, Ins. 179  
*Pachygraphia*, *Brauer and Bergenstamm*, Ins. 300  
*Pachyma*, *Weymer*, Ins. 244  
*Pachymerola*, *Bates*, Ins. 165  
*Pachymylus*, *Woodward*, Pisces 35  
*Pachypalpa*, *Weise*, Ins. 179  
*Pachypodagrus*, *Tepper*, Ins. 330  
*Pagiophilæus*, *Faust*, Ins. 155  
  
*Palæocasuaris*, *Forbes*, Aves 25  
*Palæochrysopila*, *Meunier*, Ins. 83  
*Palæocorax*, *Forbes*, Aves 49  
*Palæoctenis*, *Meyrick*, Ins. 270  
*Palæomutela*, *Amalitzky*, Moll. 93  
*Palæonarica*, *Kittl*, Moll. 85  
*Palæopelagus*, *De Vis*, Aves 34  
*Palæosaccus*, *Hinde*, Spong. 17  
*Palæotetrix*, *Shufeldt*, Aves 27  
*Palembus*, *Casey*, Ins. 138  
*Palpifer*, *Hampson*, Ins. 244  
*Pandeus*, *Keyserling*, Arachn. 25  
*Panthauma*, *Staudinger*, Ins. 258  
*Pantorhytes*, *Faust*, Ins. 155  
*Papua*, *Röber*, Ins. 223  
*Paradidyma*, *Brauer and Bergenstamm*, Ins. 300  
*Paradoria*, *Brauer and Bergenstamm*, Ins. 299  
*Paradoxodon*, *Scott*, Mamm. 32  
*Paragædia*, *Brauer and Bergenstamm*, Ins. 299  
*Paragona*, *Staudinger*, Ins. 258  
*Paragymnomma*, *Brauer and Bergenstamm*, Ins. 301  
*Parahypochæta*, *Brauer and Bergenstamm*, Ins. 299  
*Paralæa*, *Meyrick*, Ins. 270  
*Paralispe*, *Brauer and Bergenstamm*, Ins. 299  
*Paralucilia*, *Brauer and Bergenstamm*, Ins. 301  
*Parameleus*, *Faust*, Ins. 155  
*Paramesochæta*, *Brauer and Bergenstamm*, Ins. 299  
*Paramorinia*, *Brauer and Bergenstamm*, Ins. 300  
*Paramphibolia*, *Brauer and Bergenstamm*, Ins. 301  
*Paramythia*, *De Vis*, Aves 50  
*Paraneæra*, *Brauer and Bergenstamm*, Ins. 299  
*Paranemia*, *Heyden*, Ins. 138  
*Parapallene*, *Carpenter*, Crust. 33  
*Paraphilernus*, *Desbrochers*, Ins. 155  
*Paraphysa*, *Simon*, Arachn. 28  
*Paraplagia*, *Brauer and Bergenstamm*, Ins. 299  
*Paraplinthus*, *Faust*, Ins. 155  
*Pararicia*, *Brauer and Bergenstamm*, Ins. 301  
*Pararistias*, *Robertson*, Crust. 25  
*Parasarcophila*, *Brauer and Bergenstamm*, Ins. 300  
*Parasetigena*, *Brauer and Bergenstamm*, Ins. 299  
*Paratachina*, *Brauer and Bergenstamm*, Ins. 300

- Paratænia, *Kerremans*, Ins. 125  
 Parathrylea, *Duvivier*, Ins. 180  
 Paratrixa, *Brauer and Bergenstamm*, Ins. 300  
 Paratryphera, *Brauer and Bergenstamm*, Ins. 298  
 Pardaliscoides, *Stebbing*, Crust. 27  
 Parœdiceros, *Sars*, Crust. 26  
 Parthanosaurus, *Skuphous*, Rept. 34  
 Passiena, *Thorell*, Arachn. 24  
 Patala, *Moore*, Ins. 220  
 Patanocnema, *Karsch*, Ins. 305  
 Patulopsis, *Suter*, Moll. 62  
 Pavicia, *Brongniart*, Ins. 165  
 Pegada, *Moore*, Ins. 220  
 Pelagia, *Gumpfenberg*, Ins. 270  
 Pelecostoma, *Reibisch*, Moll. 63  
 Pelioderma, *Bergroth*, Ins. 305  
 Pelobrochis, *Lucas*, Ins. 244  
 Peltorhynchus, *Thorell*, Arachn. 32  
 Peltura, *Perugia*, Pisces 26  
 Pentacnemus, *Howard*, Ins. 207  
 Pentacodon, *Scott*, Mamm. 31  
 Pentarthrinus, *Casey*, Ins. 155  
 Penthima, *Kraatz*, Ins. 121  
 Penthoplophora, *Tepper*, Ins. 330  
 Percolestus, *Sloane*, Ins. 96  
 Periaulax, *Cossmann*, Moll. 86  
 Periculodes, *Sars*, Crust. 26  
 Perissobasis, *Reuter*, Ins. 311  
 Peristichia, *Dall*, Moll. 84  
 Perrirella, *Chevreux and Bouvier*, Crust. 25  
 Petinops, *Brauer and Bergenstamm*, Ins. 299  
 Petrostoma, *Döderlein*, Spong. 16  
 Puxomyia, *Brauer and Bergenstamm*, Ins. 298  
 Phænoderus, *Péringuey*, Ins. 156  
 Phalacra, *Staudinger*, Ins. 258  
 Pharcidella, *Dall*, Moll. 84  
 Pharmacophagus, *Haase*, Ins. 213  
 Phasiophana, *Brauer and Bergenstamm*, Ins. 301  
 Philænia, *Kirby*, Ins. 245  
 Philagria, *Kirby*, Ins. 245  
 Philiris, *Röber*, Ins. 223  
 Philudoria, *Kirby*, Ins. 245  
 Phitrus, *Karsch*, Ins. 326  
 Phlebohecta, *Hampson*, Ins. 245  
 Phorculus, *Cossmann*, Moll. 86  
 Phricta, *Redtenbacher*, Ins. 330  
 Phrissoecia, *Simon*, Arachn. 28  
 Phthorarcha, *Meyrick*, Ins. 271  
 Phyllomantis, *Saussure*, Ins. 326  
 Phyllomonas, *Klebs*, Prot. 31  
 Phyllotribouia, *Pictet and Saussure*, Ins. 330  
 Phyllozelus, *Pictet and Saussure*, Ins. 330  
 Physetonotus, *Reuter*, Ins. 311  
 Piarosoma, *Hampson*, Ins. 245  
 Piasus, *Jacoby*, Ins. 180  
 Pilemostoma, *Desbrochers*, Ins. 180  
 Pimeliopsis, *Champion*, Ins. 138  
 Pinnaspis, *Cockerell*, Ins. 318  
 Pirga, *Aurivillius*, Ins. 245  
 Placetrion, *Schalfeef*, Crust. 22  
 Placilla, *Moore*, Ins. 220  
 Plæsiomys, *Hall and Clarke*, Brach. 7  
 Plagiobothrus, *Karsch*, Arachn. 28  
 Plagiocampa, *Schewiakoff*, Prot. 32  
 Plagiochæta, *Benham*, Vermes 51  
 Plagiomima, *Brauer and Bergenstamm*, Ins. 301  
 Plagiopholis, *Boulenger*, Rept. 27  
 Plagiprospherysa, *Townsend*, Ins. 297  
 Planadecta, *Simon*, Arachn. 28  
 Planctoplana, *Graff*, Vermes 72  
 Planolocha, *Meyrick*, Ins. 271  
 Platamartus, *Reitter*, Ins. 108  
 Platychilina, *Woehrmann and Koken*, Moll. 85  
 Platydasys, *Butler*, Ins. 258  
 Platylister, *Lewis*, Ins. 105  
 Platyopisthen, *Roelofs*, Ins. 156  
 Platyatus, *Bergroth*, Ins. 305  
 Platyzygæna, *Swinhoe*, Ins. 245  
 Plecteulota, *Moellendorff*, Moll. 60  
 Plectrothis, *Hall and Clarke*, Brach. 7  
 Pleionogaster, *Michaelsen*, Vermes 15  
 Plesiobaris, *Casey*, Ins. 156  
 Plesiocerithium, *Cossmann*, Moll. 72  
 Plethocardia, *Ulrich*, Moll. 92  
 Pleurobranchillus, *Bergh*, Moll. 70  
 Pleuronota, *Kraatz*, Ins. 121  
 Plusilla, *Staudinger*, Ins. 258  
 Podohuenia, *Gavino*, Crust. 17  
 Podotachina, *Brauer and Bergenstamm*, Ins. 299  
 Pœcilogramma, *Butler*, Ins. 259  
 Pœcilomallus, *Bates*, Ins. 166  
 Pœcilopsyra, *Dohrn*, Ins. 330  
 Pœcilocticta, *Kraatz*, Ins. 118  
 Polemistus, *Saussure*, Ins. 193  
 Polichus, *Thorell*, Arachn. 17  
 Polychærus, *Mark*, Vermes 72  
 Polycirsus, *Cossmann*, Moll. 79  
 Polymazus, *Gerstaecker*, Ins. 310  
 Polymicrus, *Faust*, Ins. 156  
 Polynesia, *Swinhoe*, Ins. 271  
 Polypostia, *Bergendal*, Vermes 72  
 Polysyncraton, *Nott*, Tun. 6  
 Polytoechia, *Hall & Clarke*, Brach. 7

- Pontomyxa, *Topsent*, Prot. 18  
 Pontosaurus, *Gorjanovic - Kramberger*, Rept. 25  
 Porphyriornis, *Allen*, Aves 31  
 Porrhothele, *Simon*, Arachn. 28  
 Porzanula, *Frohawk*, Aves 30  
 Potamanax, *Pilsbry*, Moll. 77  
 Præstilbia, *Staudinger*, Ins. 259  
 Preptos, *Schaus*, Ins. 246  
 Prionopaltys, *Warren*, Ins. 277  
 Prisma, *Simroth*, Moll. 66  
 Pristoneura, *Reuter*, Ins. 312  
 Proalligator, *Ambrosetti*, Rept. 32  
 Proboloptera, *Meyrick*, Ins. 271  
 Procampa, *Holland*, Ins. 225  
 Proctammodes, *Blackburn*, Ins. 113  
 Procyclotus, *Fischer*, Moll. 81  
 Prodascynemis, *Warren*, Ins. 277  
 Progenetta, *Déperet*, Mamm. 29  
 Prolasius, *Forel*, Ins. 200  
 Promecotarsus, *Casey*, Ins. 156  
 Promilesia, *Arribalzaga*, Ins. 292  
 Propodinema, *Ambrosetti*, Rept. 23  
 Proporhynchops, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Prosenoides, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Prosheliomyia, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Prosopophora, *Douglas*, Ins. 318  
 Prosthecocotyle, *Monticelli*, Vermes  
 65  
 Prostenodon, *Cossmann*, Moll. 77  
 Protadia, *Simon*, Arachn. 19  
 Proteinidium, *Bates*, Ins. 166  
 Protochriacus, *Scott*, Mamm. 31  
 ?Protocimex, *Moberg*, Ins. 83  
 Protodus, *Woodward*, Pisces 37  
 Protogonodon, *Scott*, Mamm. 32  
 Protopausus, *Gestro*, Ins. 103  
 Protorthis, *Hall and Clarke*, Brach. 7  
 Provipera, *Kinkelin*, Rept. 30  
 Proxyrodes, *Blackburn*, Ins. 156  
 Psalidopus, *Wood - Mason and  
 Alcock*, Crust. 24  
 Psammonyx, *Döderlein*, Prot. 20  
 Pselligmus, *Simon*, Arachn. 28  
 Pseudachlamys, *Duvivier*, Ins. 132  
 Pseudaclees, *Faust*, Ins. 156  
 Pseudacoenites, *Kriechbaumer*, Ins.  
 204  
 Pseudanchonus, *Faust*, Ins. 157  
 Pseudantheræa, *Weymer*, Ins. 246  
 Pseudantiora, *Kirby*, Ins. 246  
 Pseudaphelia, *Kirby*, Ins. 246  
 Pseudargynnis, *Karsch*, Ins. 218  
 Pseudarthromerus, *Karsch*, Arachn.  
 34  
 Pseudasbolia, *Kirby*, Ins. 246  
 Pseudathyrma, *Butler*, Ins. 259  
 Pseudatractocera, *Townsend*, Ins.  
 297  
 Pseudavicula, *Juck and Etheridge*,  
 Moll. 94  
 Pseuderchia, *Kirby*, Ins. 246  
 Pseudhypsa, *Kirby*, Ins. 246  
 Pseudobarynotus, *Desbrochers*, Ins.  
 157  
 Pseudocassida, *Desbrochers*, Ins. 180  
 Pseudochthonius, *Balzan*, Arachn.  
 34  
 Pseudocrania, *Weise*, Ins. 180  
 Pseudodexia, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Pseudodiabrotica, *Jacoby*, Ins. 180  
 Pseudodiloma, *Cossmann*, Moll. 86  
 Pseudodinera, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Pseudofossarus, *Woehrmann and  
 Koken*, Moll. 78  
 Pseudogermaria, *Brauer and Ber-  
 gensstamm*, Ins. 299  
 Pseudoglessula, *Bettger*, Moll. 66  
 Pseudoheteronyx, *Blackburn*, Ins.  
 116  
 Pseudoides, *Jacoby*, Ins. 181  
 Pseudojana, *Hampson*, Ins. 246  
 Pseudolaturus, *Cossmann*, Moll. 73  
 Pseudomalaia, *Kraatz*, Ins. 118  
 Pseudomaniola, *Rüber*, Ins. 220  
 Pseudomicra, *Butler*, Ins. 259  
 Pseudomythyria, *Townsend*, Ins.  
 297  
 Pseudoparlatoria, *Cockerell*, Ins. 319  
 Pseudopholis, *Duvivier*, Ins. 116  
 Pseudopiomera, *Jacoby*, Ins. 181  
 Pseudorhynchocyon, *Filhol*, Mamm.  
 27  
 Pseudoscalites, *Kittl*, Moll. 75  
 Pseudoscopelus, *Lütken*, Pisces 23  
 Pseudotagma, *Staudinger*, Ins. 271  
 Pseudoviviania, *Brauer and Bergens-  
 stamm*, Ins. 298  
 Psilodermes, *Simon*, Arachn. 23  
 Psilosticha, *Meyrick*, Ins. 271  
 Psomus, *Casey*, Ins. 157  
 Pterygotheca, *Novák*, Moll. 70  
 Ptilodegeeria, *Brauer and Bergens-  
 stamm*, Ins. 300  
 Ptilolæmus, *Ogilvie-Grant*, Aves 42  
 Ptilotachina, *Brauer and Bergens-  
 stamm*, Ins. 299  
 Ptiloxena, *Chapman*, Aves 51  
 Ptycheulimella, *Sacco*, Moll. 84  
 Puer, *Ortmann*, Crust. 22  
 Pungtungia, *Herzenstein*, Pisces 27

- Pustularia, *Woehrmann and Koken*, Moll. 77  
 Putlia, *Moore*, Ins. 220  
 Pycnobaris, *Casey*, Ins. 157  
 Pygetera, *Kirby*, Ins. 246  
 Pyracoderus, *Guillebeau*, Ins. 107  
 Pyrgodesmus, *Pocock*, Myr. 5  
 Pyrgolampros, *Sacco*, Moll. 84  
 Pytheas, *Topsent*, Spong. 22  
  
 Quassiremus, *Jordan and Davis*, Pisces 31  
  
 Rabula, *Jordan and Davis*, Pisces 31  
 Rachias, *Simon*, Arachn. 29  
 Raddea, *Alphéraky*, Ins. 259  
 Radulphius, *Keyserling*, Arachn. 20  
 Radsella, *Pilsbry*, Moll. 89  
 Ræcius, *Simon*, Arachn. 33  
 Rafinesquina, *Hall and Clarke*, Brach. 7  
 Rancora, *Smith*, Ins. 259  
 Rangbia, *Moore*, Ins. 220  
 Rezia, *Kirby*, Ins. 246  
 Rhabderemia, *Topsent*, Spong. 22  
 Rhabdops, *Boulenger*, Rept. 27  
 Rhadinomerus, *Faust*, Ins. 157  
 Rhammatopoda, *Redtenbacher*, Ins. 330  
 Rhaphocolus, *Casey*, Ins. 157  
 Rhechosticha, *Simon*, Arachn. 29  
 Rhetocraspeda, *Warren*, Ins. 277  
 Rhicnodus, *Fairmaire*, Ins. 138  
 Rhinochrosis, *Desbrochers*, Ins. 157  
 Rhinomacartia, *Brauer and Bergenstamm*, Ins. 300  
 Rhinoscopelus, *Lütken*, Pisces 26  
 Rhizorhina, *Hansen*, Crust. 31  
 Rhochmogaster, *Karsch*, Ins. 310  
 Rhodacanthis, *Rothschild*, Aves 52  
 Rhodareas, *Kirby*, Ins. 246  
 Rhodometra, *Meyrick*, Ins. 271  
 Rhopalomyia, *Rübsaamen*, Ins. 284  
 Rhoptria, *Gumpfenberg*, Ins. 271  
 Rhynchomonas, *Klebs*, Prot. 31  
 Rhyparobia, *Krauss*, Ins. 326  
 Rhyparonotus, *Faust*, Ins. 157  
 Rivularia, *Heude*, Moll. 79  
 Roemerella, *Hall and Clarke*, Brach. 6  
 Rotania, *Giesbrecht*, Crust. 31  
 Rues, *Casey*, Ins. 138  
 Rusidrina, *Staudinger*, Ins. 259  
 Rybakowia, *Jacobsohn*, Ins. 181  
  
 Saccamœba, *Frenzel*, Prot. 18  
 Sagdellina, *Cossmann*, Moll. 62  
 Samuza, *Keyserling*, Arachn. 21  
  
 Sapinella, *Kirby*, Ins. 247  
 Sarax, *Simon*, Arachn. 14  
 Sarcoclista, *Townsend*, Ins. 297  
 Sarcodexia, *Townsend*, Ins. 297  
 Sarcodidemnoides, *Oka and Willey*, Tun. 6  
 Sarcomacronychia, *Townsend*, Ins. 297  
 Sarcotachinella, *Townsend*, Ins. 297  
 Sarinda, *Peckham*, Arachn. 18  
 Sarothromyia, *Brauer and Bergenstamm*, Ins. 300  
 Saurorhynchus, *Reis*, Pisces 33  
 Scalidognathus, *Karsch*, Arachn. 29  
 Scelolethrus, *Sémenow*, Ins. 113  
 Schiosia, *Boehm*, Moll. 91  
 Schistomysis, *Norman*, Crust. 24  
 Schistosalius, *Saussure*, Ins. 194  
 Schizonotus, *Casey*, Ins. 157  
 Schizonotus, *Reuter*, Ins. 312  
 Scioglyptis, *Meyrick*, Ins. 271  
 Sciton, *Blackburn*, Ins. 117  
 Selerocyphon, *Blackburn*, Ins. 129  
 Scodiomima, *Staudinger*, Ins. 272  
 Scotinœus, *Simon*, Arachn. 29  
 Scutotribonia, *Pictet and Saussure*, Ins. 331  
 Scymnomorpha, *Blackburn*, Ins. 185  
 Scytalichthys, *Jordan and Davis*, Pisces 31  
 Sebastea, *Kirby*, Ins. 247  
 Seidlitzia, *Desbrochers*, Ins. 157  
 Selenomyia, *Brauer and Bergenstamm*, Ins. 300  
 Sematocera, *Durrant*, Ins. 281  
 Semiactæon, *Cossmann*, Moll. 69  
 Semiauricula, *Cossmann*, Moll. 67  
 Semichnoodes, *Weise*, Ins. 185  
 Semiterebellum, *Cossmann*, Moll. 75  
 Semivertagus, *Cossmann*, Moll. 75  
 Semniomima, *Warren*, Ins. 278  
 Semora, *Peckham*, Arachn. 18  
 Senex, *Ortmann*, Crust. 22  
 Sepidiopsis, *Gestro*, Ins. 138  
 Sepiomus, *Aurivillius*, Ins. 158  
 Sericocoris, *Karsch*, Ins. 308  
 Sericoplaga, *Warren*, Ins. 278  
 Sesiophaga, *Brauer and Bergenstamm*, Ins. 301  
 Sidemia, *Staudinger*, Ins. 259  
 Sigaretopsis, *Cossmann*, Moll. 82  
 Siglophora, *Butler*, Ins. 247  
 Silvanopsis, *Grouvelle*, Ins. 109  
 Simophorus, *Faust*, Ins. 158  
 Simopone, *Forel*, Ins. 200  
 Sinchula, *Moore*, Ins. 221  
 Sipalolasma, *Simon*, Arachn. 29  
 Siphoclytia, *Townsend*, Ins. 298

- Siphophyto, *Townsend*, Ins. 298  
 Somabrachys, *Kirby*, Ins. 247  
 Somatrichia, *Kirby*, Ins. 247  
 Sophronopterus, *Faust*, Ins. 158  
 Spanioplou, *Topsent*, Spong. 22  
 Sparganophilus, *Benham*, Vermes 51  
 Sphærarthra, *Weise*, Ins. 181  
 Sphærococcus, *Maskell*, Ins. 319  
 Sphæromyxa, *Thélohan*, Prot. 29  
 Sphæropyle, *Rüst*, Prot. 25  
 Spheciospongia, *Marshall*, Spong. 22  
 Sphecodoptera, *Hampson*, Ins. 228  
 Spheniscosomus, *Kraatz*, Ins. 129  
 Sphragifera, *Staudinger*, Ins. 259  
 Spica, *Sacco*, Moll. 84  
 Spilopopillia, *Kraatz*, Ins. 118  
 Spinipalpa, *Alphéraky*, Ins. 259  
 Spinoza, *Lewis*, Ins. 132  
 Spintharina, *Sémenov*, Ins. 201  
 Spirocapsa, *Rüst*, Prot. 25  
 Spironema, *Klebs*, Prot. 31  
 Spirulirostrina, *Canavari*, Moll. 54  
 Spongia, *Ogilvie*, Spong. 24  
 Stasimopus, *Simon*, Arachn. 29  
 Stathmorrhopa, *Meyrick*, Ins. 272  
 Stegophilum, *Schewiakoff*, Prot. 32  
 Stenagenia, *Saussure*, Ins. 194  
 Stenancylus, *Casey*, Ins. 158  
 Stenochirus, *Karsch*, Arachn. 14  
 Stenochora, *Warren*, Ins. 278  
 Stenomeles, *Warren*, Ins. 278  
 Stenophylloides, *Hampson*, Ins. 248  
 Stenopyga, *Karsch*, Ins. 326  
 Stenovalgus, *Kolbe*, Ins. 121  
 Stenogrocerus, *Simon*, Arachn. 29  
 Stephanocrates, *Kolbe*, Ins. 121  
 Stephanon, *Schewiakoff*, Prot. 31  
 Sterrhochrotus, *Simon*, Arachn. 29  
 Sthenaropoda, *Karsch*, Ins. 331  
 Stibaroma, *Meyrick*, Ins. 272  
 Stichobasis, *Kirby*, Ins. 248  
 Stictippus, *Scudder*, Ins. 332  
 Stictobaris, *Casey*, Ins. 158  
 Stigmosphærostylus, *Rüst*, Prot. 27  
 Stilbina, *Staudinger*, Ins. 259  
 Streptomonas, *Klebs*, Prot. 31  
 Streptopteron, *Swinhoe*, Ins. 272  
 Stroturbonilla, *Sacco*, Moll. 84  
 Strobilidium, *Schewiakoff*, Prot. 32  
 Strobilæstrus, *Brauer*, Ins. 293  
 Stylinos, *Topsent*, Spong. 23  
 Stylogymnomyia, *Brauer and Bergenstamm*, Ins. 301  
 Styloneuria, *Brauer and Bergenstamm*, Ins. 300  
 Stylostichon, *Topsent*, Spong. 23  
 Sulcosubularia, *Sacco*, Moll. 84  
 Sulcoturbonilla, *Sacco*, Moll. 84  
 Sumnius, *Weise*, Ins. 185  
 Suteria, *Pilsbry*, Moll. 60  
 Sveltella, *Cossmann*, Moll. 72  
 Symmachia, *Brenske*, Ins. 117  
 Synapticola, *Voigt*, Crust. 31  
 Synarmadillo, *Dollfuss*, Crust. 28  
 Synchelidium, *Sars*, Crust. 26  
 Synegiodes, *Swinhoe*, Ins. 272  
 Syngonorthus, *Butler*, Ins. 272  
 Syntomoides, *Hampson*, Ins. 248  
 Synute, *Dendy*, Spong. 16  
 Systemope, *Cossmann*, Moll. 72  
 Tachinomima, *Brauer and Bergenstamm*, Ins. 300  
 Tachinomyia, *Townsend*, Ins. 298  
 Tachinophyto, *Townsend*, Ins. 298  
 Tachinoptera, *Brauer and Bergenstamm*, Ins. 298  
 Tachyornis, *Milne-Edwards*, Aves 44  
 Tactoderus, *Fairmaire*, Ins. 139 and errata  
 Tamphana, *Schaus*, Ins. 248  
 Tanaophysa, *Warren*, Ins. 278  
 Tantara, *Kirby*, Ins. 248  
 Tanyzonus, *Marshall*, Ins. 207  
 Tapinattus, *Thorell*, Arachn. 18  
 Tapinopus, *Milne-Edwards*, Aves 35  
 Tectariopsis, *Cossmann*, Moll. 86  
 Tedinus, *Casey*, Ins. 141  
 Tegonotus, *Nalepa*, Arachn. 38  
 Telacodon, *Marsh*, Mamm. 53  
 Tenagognus, *Gerstaecker*, Ins. 309  
 Tenesis, *Duvivier*, Ins. 139  
 Tephromyia, *Brauer and Bergenstamm*, Ins. 300  
 Terastiodes, *Warren*, Ins. 278  
 Terpnosia, *Distant*, Ins. 313  
 Teslasena, *Fleutiaux*, Ins. 129  
 Tetracлада, *Howard*, Ins. 207  
 Tetracænodon, *Scott*, Mamm. 31  
 Tetragrapha, *Brauer and Bergenstamm*, Ins. 299  
 Tetralepis, *Böttger*, Rept. 28  
 Tetraplepis, *Hampson*, Ins. 249  
 Tetrastyla, *Schewiakoff*, Prot. 32  
 Tetreurytarsa, *Horn*, Ins. 90  
 Teucer, *Kirby*, Ins. 249  
 Thalassohelix, *Pilsbry*, Moll. 60  
 Theclinesthes, *Röber*, Ins. 224  
 Thecocyrtella, *Bittner*, Brach. 7  
 Thelychæta, *Brauer and Bergenstamm*, Ins. 301  
 Thelymyia, *Brauer and Bergenstamm*, Ins. 299  
 Thesalia, *Casey*, Ins. 167

- Thlæodon, *Cope*, Mamm. 54  
 Thoracites, *Brauer and Bergenstamm*, Ins. 300  
 Thrinaconyx, *Saussure*, Ins. 326  
 Thylakidium, *Schewiakoff*, Prot. 32  
 Thylakomonas, *Schewiakoff*, Prot. 31  
 Thysanomyia, *Brauer and Bergenstamm*, Ins. 299  
 Tiaporus, *Cope*, Rept. 23  
 Tiarella, *Cossmann*, Moll. 75  
 Tibetobia, *Frivaldszky*, Ins. 167  
 Ticera, *Swinhoe*, Ins. 249  
 Tigidia, *Simon*, Arachn. 29  
 Timus, *Péringuey*, Ins. 159  
 Tineomima, *Staudinger*, Ins. 281  
 Tmesiphantes, *Simon*, Arachn. 29  
 Tolypaspis, *Schmidt*, Pisces 35  
 Tomasina, *Hall and Clarke*, Brach. 6  
 Tortisipho, *Cossmann*, Moll. 73  
 Tosaura, *Swinhoe*, Ins. 273  
 Totua, *Keyserling*, Arachn. 31  
 Toxoides, *Hampson*, Ins. 250  
 Trabaloides, *Kirby*, Ins. 249  
 Trachyschoenium, *Cossmann*, Moll. 75  
 Trachyzulpha, *Dohrn*, Ins. 331  
 Transvaalia, *Distant*, Ins. 308  
 Trematobolus, *Matthew*, Brach. 6  
 Trepobaris, *Casey*, Ins. 159  
 Tretospira, *Woehrmann and Koken*, Moll. 78  
 Triacetelus, *Bates*, Ins. 167  
 Trichæta, *Swinhoe*, Ins. 249  
 Trichauchenia, *Warren*, Ins. 278  
 Trichocarenum, *Blackburn*, Ins. 98  
 Trichocerota, *Hampson*, Ins. 228  
 Tricholimax, *Frenzel*, Prot. 18  
 Trichoreus, *Blackburn*, Ins. 185  
 Trichromia, *Fairmaire*, Ins. 167  
 Tricosemeia, *Holland*, Ins. 226  
 Tridentulus, *Cope*, Rept. 24  
 Trigonomonas, *Klebs*, Prot. 31  
 Trigonosomus, *Faust*, Ins. 159  
 Trilophomys, *Depéret*, Mamm. 35  
 Triplophleps, *Hampson*, Ins. 249  
 Trichinophilis, *Boulenger*, Rept. 28  
 Trischistognatha, *Warren*, Ins. 279  
 Tristania, *Kirby*, Ins. 249  
 Tritomicrus, *Fairmaire*, Ins. 167  
 Trixolista, *Townsend*, Ins. 298  
 Trophonina, *Röber*, Ins. 221  
 Turritodostomia, *Sacco*, Moll. 84  
 Tykonus, *Michælsen*, Vermes 51  
 Tylochilus, *Cossmann*, Moll. 76  
 Tylopteryx, *Hutton*, Aves 25  
 Tympanoptera, *Pictet and Saussure*, Ins. 331  
 Typhlotriton, *Stejneger*, Rept. 40  
 Uhlunga, *Distant*, Ins. 305  
 Undularia, *Woehrmann and Koken*, Moll. 77  
 Urgulania, *Thorell*, Arachn. 26  
 Urophagus, *Klebs*, Prot. 31  
 Usambius, *Kolbe*, Ins. 170  
 Utella, *Dendy*, Spong. 16  
 Valenus, *Casey*, Ins. 168  
 Venefica, *Jordan and Davis*, Pisces 31  
 Vermiculus, *Goodrich*, Vermes 51  
 Virgo, *Staudinger*, Ins. 260  
 Viridonia, *Rothschild*, Aves 54  
 Vitalis, *Fairmaire*, Ins. 170  
 Vitrinoides, *Simroth*, Moll. 58  
 Vitriwebbina, *Chapman*, Prot. 21  
 Vosmaeropsis, *Dendy*, Spong. 16  
 Wateletia, *Cossmann*, Moll. 75  
 Weltina, *Piersig*, Arachn. 36  
 Xanthodiscus, *Schewiakoff*, Prot. 31  
 Xenesthis, *Simon*, Arachn. 29  
 Xenogenius, *Kolbe*, Ins. 122  
 Xenomys, *Merriam*, Mamm. 35  
 Xenomystax, *Jordan and Davis*, Pisces 31  
 Xenorthrius, *Gorham*, Ins. 132  
 Xenosyllides, *Périslavzeff*, Vermes 47  
 Xerospermophilus, *Merriam*, Mamm. 33  
 Xiphopheromyia, *Bigot*, Ins. 292  
 Xylomoia, *Staudinger*, Ins. 260  
 Xylotachina, *Brauer and Bergenstamm*, Ins. 299  
 Yvesia, *Topsent*, Spong. 23  
 Zamacra, *Meyrick*, Ins. 273  
 Zametopias, *Thorell*, Arachn. 32  
 Zatapina, *Karsch*, Arachn. 26  
 Zebeeba, *Kirby*, Ins. 249  
 Zeloticus, *Péringuey*, Ins. 98  
 Zeuzerodes, *Pagenstecher*, Ins. 279  
 Ziælas, *Fairmaire*, Ins. 139  
 Zonochroa, *Brauer and Bergenstamm*, Ins. 301  
 Zosteromyia, *Brauer and Bergenstamm*, Ins. 300  
 Zschokkea, *Kænike*, Arachn. 36  
 Zuniga, *Peckham*, Arachn. 18  
 Zutulba, *Kirby*, Ins. 250  
 Zygænopsis, *Swinhoe*, Ins. 250  
 Zygopleura, *Woehrmann and Koken*, Moll. 77

# LIST OF THE PUBLICATIONS

## OF THE

### ZOOLOGICAL SOCIETY OF LONDON.

---

THE scientific publications of the Zoological Society of London are of two kinds—"Proceedings," published in an octavo form, and "Transactions," in quarto.

According to the present arrangements, the "Proceedings" contain not only notices of all business transacted at the scientific meetings, but also all the papers read at such meetings and recommended to be published in the "Proceedings" by the Committee of Publication. A large number of coloured plates and engravings are attached to each annual volume of the "Proceedings," to illustrate the new or otherwise remarkable species of animals described in them. Amongst such illustrations, figures of the new or rare species acquired in a living state for the Society's Gardens are often given.

The "Proceedings" for each year are issued in four parts, on the first of the months of June, August, October, and April, the part published in April completing the volume for the preceding year.

The "Transactions" contain such of the more important communications made to the scientific meetings of the Society as, on account of the nature of the plates required to illustrate them, are better adapted for publication in the quarto form. They are issued at irregular intervals.

Fellows and Corresponding Members, upon payment of a Subscription of One Guinea before the day of the Anniversary Meeting in each year, are entitled to receive all the Society's Publications for the year. They are likewise entitled to purchase the Publications of the Society at 25 per cent. less than the price charged for them to the Public. A further reduction of 25 per cent. is made upon purchases of Publications issued prior to 1871, if they exceed the value of five pounds.

The following is a complete list of the publications of the Society already issued. They may be obtained at the Society's Office (3 Hanover Square, W.), at Messrs. Longmans', the Society's publishers (Paternoster Row, E.C.), or through any bookseller.

[August, 1893.]

# TRANSACTIONS OF THE ZOOLOGICAL SOCIETY OF LONDON.

4to. 12 vols. and 7 Parts.

Vol.	I., containing 59 Plates. .... (1833-35) ....			Price to Fellows.			Price to the Public.		
				£	s.	d.	£	s.	d.
"	II., " 71 " .... (1835-41) ....			4	0	0	5	6	6*
"	III., " 63 " .... (1842-49) ....			3	8	3	4	11	0*
"	IV., " 77 " .... (1851-62) ....			6	2	0	8	2	6
"	V., " 67 " .... (1862-66) ....			5	4	3	6	19	0
"	VI., " 92 " .... (1866-69) ....			11	5	0	15	0	0
"	VII., " 73 " .... (1869-72) ....			10	4	0	13	12	0
"	VIII., " 82 " .... (1872-74) ....			9	8	3	12	11	0
"	IX., " 99 " .... (1875-77) ....			12	1	6	16	2	0
"	X., " 95 " .... (1877-79) ....			10	0	3	13	7	0
Index, Vols. I.-X. .... (1833-79) ....				0	7	6	0	10	0
Vol.	XI., containing 97 Plates.. (1880-85) ....			9	12	0	12	16	0
"	XII., " 65 " .. (1886-90) ....			5	8	0	7	4	0
"	XIII., Pt. 1 " 6 " .. (Jan. 1891)....			0	15	9	1	1	0
"	" Pt. 2 " 6 " .. (Apr. 1891)....			0	15	9	1	1	0
"	" Pt. 3 " 6 " .. (Oct. 1891)....			0	18	0	1	4	0
"	" Pt. 4 " 1 " .. (Apr. 1892)....			0	4	6	0	6	0
"	" Pt. 5 " 9 " .. (Feb. 1893)....			0	11	3	0	15	0
"	" Pt. 6 " 4 " .. (June 1893) ..			0	9	0	0	12	0
"	" Pt. 7 " 6 " .. (Aug. 1893) ..			0	9	0	0	12	0

## PROCEEDINGS OF THE COMMITTEE OF SCIENCE AND CORRESPONDENCE OF THE ZOOLOGICAL SOCIETY OF LONDON. 8vo. 2 vols.

LONDON. 8vo. 2 vols.				Price to	Price to the
				Fellows.	Public.
Part I.	1830-31.	1 vol. 8vo.	.....	4s. 6d.	6s.†
"	II.	1832.	" .....	4s. 6d.	6s.

## PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON. 8vo. 15 vols. and Index. (First Series.)

				Price to	Price to the					Price to	Price to the	
				Fellows.	Public.					Fellows.	Public.	
Part	I. 1833.	1 vol. 8vo.	4s. 6d.	..	6s.†	Part	IX. 1841.	1 vol. 8vo.	4s. 6d.	..	6s.†	
"	II. 1834.	"	4s. 6d.	..	6s.	"	X. 1842.	"	4s. 6d.	..	6s.†	
"	III. 1835.	"	4s. 6d.	..	6s.	"	XI. 1843.	"	4s. 6d.	..	6s.†	
"	IV. 1836.	"	4s. 6d.	..	6s.	"	XII. 1844.	"	4s. 6d.	..	6s.	
"	V. 1837.	"	4s. 6d.	..	6s.	"	XIII. 1845.	"	4s. 6d.	..	6s.	
"	VI. 1838.	"	4s. 6d.	..	6s.	"	XIV. 1846.	"	4s. 6d.	..	6s.†	
"	VII. 1839.	"	4s. 6d.	..	6s.†	"	XV. 1847.	"	4s. 6d.	..	6s.†	
"	VIII. 1840.	"	4s. 6d.	..	6s.†	Index 1830-1847.			"	4s. 6d.	..	6s.

## 8vo. 13 vols. and Index. (Second Series.)

		Letterpress only.				With Plates coloured.						
		Price to Fellows.		Price to the Public.		Price to Fellows.		Price to the Public.				
		£	s.	d.	£	s.	d.	£	s.	d.		
Part	XVI. 1848. 1 vol. 8vo.	4s.	6d.	..	6s.	1	0	8	..	1	7	6½
"	XVII. 1849. "	4s.	6d.	..	6s.	1	0	8	..	1	7	6½
"	XVIII. 1850. "	4s.	6d.	..	6s.	1	8	6	..	1	18	0½
"	XIX. 1851. "	4s.	6d.	..	6s.	0	15	9	..	1	1	0½
"	XX. 1852. "	4s.	6d.	..	6s.	0	15	9	..	1	1	0½
"	XXI. 1853. "	4s.	6d.	..	6s.	0	18	0	..	1	4	0½
"	XXII. 1854. "	4s.	6d.	..	6s.	0	19	6	..	1	6	0½
"	XXIII. 1855. "	4s.	6d.	..	6s.	1	8	6	..	1	18	0½
"	XXIV. 1856. "	4s.	6d.	..	6s.	1	0	8	..	1	7	6½
"	XXV. 1857. "	4s.	6d.	..	6s.	1	0	8	..	1	7	6½
"	XXVI. 1858. "	4s.	6d.	..	6s.	1	11	6	..	2	2	0½
"	XXVII. 1859. "	4s.	6d.	..	6s.	1	11	6	..	2	2	0½
"	XXVIII. 1860. "	4s.	6d.	..	6s.	1	11	6	..	2	2	0½
Index 1848-1860.		4s.	6d.	..	6s.							

\* No perfect copies in stock.

† Out of print.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE  
ZOOLOGICAL SOCIETY OF LONDON. 8vo. 30 vols. and 3 Indices.

	Letterpress only.		With Plates uncoloured.		With Plates coloured.	
	Price to Fellows.	Price to the Public.	Price to Fellows.	Price to the Public.	Price to Fellows.	Price to the Public.
1861 ..	4s. 6d.	6s.	9s.	12s.	33s. 9d.	45s.
1862 ..	4s. 6d.	6s.	9s.	12s.	33s. 9d.	45s.
1863 ..	4s. 6d.	6s.	9s.	12s.	33s. 9d.	45s.
1864 ..	4s. 6d.	6s.*	9s.	12s.†	33s. 9d.	45s.
1865 ..	4s. 6d.	6s.	9s.	12s.	33s. 9d.	45s.
1866 ..	4s. 6d.	6s.*	9s.	12s.†	33s. 9d.	45s.
1867 ..			9s.	12s.*	33s. 9d.	45s.
1868 ..			9s.	12s.	33s. 9d.	45s.
1869 ..			9s.	12s.	33s. 9d.	45s.
1870 ..			9s.	12s.	33s. 9d.	45s.
Index, 1861-1870 ..		4s. 6d.	6s.			
1871 ..			9s.	12s.*	33s. 9d.	45s.
1872 ..			9s.	12s.*	33s. 9d.	45s.†
1873 ..			9s.	12s.	33s. 9d.	45s.
1874 ..			9s.	12s.†	36s.	48s.†
1875 ..			9s.	12s.	36s.	48s.
1876 ..			9s.	12s.	36s.	48s.
1877 ..			9s.	12s.	36s.	48s.
1878 ..			9s.	12s.	36s.	48s.
1879 ..			9s.	12s.	36s.	48s.
1880 ..			9s.	12s.	36s.	48s.
Index, 1871-1880 ..		4s. 6d.	6s.			
1881 ..			9s.	12s.	36s.	48s.
1882 ..			9s.	12s.	36s.	48s.
1883 ..			9s.	12s.	36s.	48s.
1884 ..			9s.	12s.	36s.	48s.
1885 ..			9s.	12s.	36s.	48s.
1886 ..			9s.	12s.	36s.	48s.
1887 ..			9s.	12s.	36s.	48s.
1888 ..			9s.	12s.	36s.	48s.
1889 ..			9s.	12s.	36s.	48s.
1890 ..			9s.	12s.	36s.	48s.
Index, 1881-1890 ..		4s. 6d.	6s.			

\* No perfect copies in stock.

† Out of print.

PROCEEDINGS OF THE GENERAL MEETINGS FOR SCIENTIFIC  
BUSINESS OF THE ZOOLOGICAL SOCIETY OF LONDON.

	Price to Fellows.	Price to the Public.
1891 ..	36s.	48s.
1892 ..	36s.	48s.
1893, part 1 (Jan. & Feb.) ..	9s.	12s.
1893, „ 2 (Mar. & Apr.) ..	9s.	12s.
1893, „ 3 (May & June) ..	9s.	12s.

LISTS OF THE ANIMALS IN THE SOCIETY'S GARDENS.

- List of Vertebrated Animals Living in the Gardens of the Zoological Society of London. (First Edition.) 8vo. 1862. Price 1s. 6d.  
List of Vertebrated Animals Living in the Gardens of the Zoological Society of London. (Second Edition.) 8vo. 1863. Price 1s. 6d.  
List of Vertebrated Animals Living in the Gardens of the Zoological Society of London. (Third Edition.) 8vo. 1865. Price 1s. 6d.  
List of Vertebrated Animals Living in the Gardens of the Zoological Society of London. (Fourth Edition.) 8vo. 1866. Price 1s. 6d.

- Revised List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London. (Fifth Edition.) 8vo. 1872. Price 2s.
- Revised List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London.—Supplement, containing Additions received in 1872, 1873, and 1874. 8vo. 1875. Price 1s.
- List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London. (Sixth Edition.) Cloth. 8vo. 1877. Price 3s. 6d.
- List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London. (Seventh Edition.) Cloth. 8vo. 1879. Price 3s. 6d.
- List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London.—First Supplement, containing Additions received in 1879. 8vo. 1880. Price 1s. 6d.
- List of the Vertebrated Animals now or lately Living in the Gardens of the Zoological Society of London. (Eighth Edition.) Cloth, 8vo. 1883. Price 3s. 6d.

---

#### THE ZOOLOGICAL RECORD.

- The Zoological Record for the years 1864–1885. Twenty-two volumes. Price £5 10s.
- The Zoological Record for 1886; being Volume the Twenty-third of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. Cloth, 8vo. 1887. Price 10s., Net.
- The Zoological Record for 1887; being Volume the Twenty-fourth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. Cloth, 8vo. 1888. Price 10s., Net.
- The Zoological Record for 1888; being Volume the Twenty-fifth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. Cloth, 8vo. 1890. Price 10s., Net.
- The Zoological Record for 1889; being Volume the Twenty-sixth of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. Cloth, 8vo. 1890. Price 10s., Net.
- The Zoological Record for 1890; being Volume the Twenty-seventh of the Record of Zoological Literature. Edited by FRANK E. BEDDARD, M.A., F.Z.S., Prosector and Davis Lecturer to the Zoological Society of London. Cloth, 8vo. 1892. Price 10s.
- The Zoological Record for 1891; being Volume the Twenty-eighth of the Record of Zoological Literature. Edited by DAVID SHARP, Esq., M.D., F.R.S., F.Z.S. Cloth, 8vo. 1892. Price 30s.
- The Zoological Record for 1892; being Volume the Twenty-ninth of the Record of Zoological Literature. Edited by DAVID SHARP, Esq., M.D., F.R.S., F.Z.S. Cloth, 8vo. 1893. Price 30s.

---

Catalogue of the Library of the Zoological Society of London. (Fourth Edition.) Cloth, 8vo. 1887. Price 4s.

*These publications may be obtained at the SOCIETY'S OFFICE (3 Hanover Square, W.), at Messrs. LONGMANS' (Paternoster Row, E.C.), or through any bookseller.*





1935 May 15  
1936

45262

